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Telephony

THE AMERICAN TELEPHONE JOURNAL

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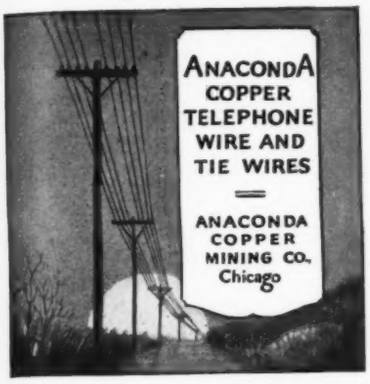

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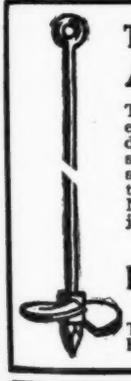

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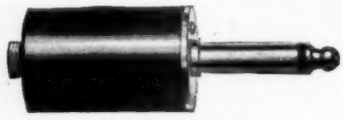

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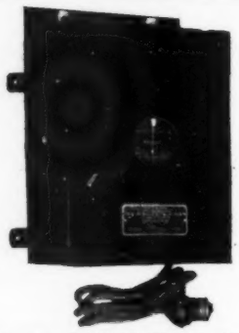

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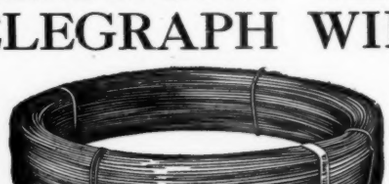

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Telephony.

THE AMERICAN TELEPHONE JOURNAL

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CURRENT OPINIONS AND COMMENTS

When a President of the United States dies in the midst of his labors the whole nation suffers and feels a loss that has a grave, sobering influence on every thoughtful citizen.

In the tragic death of Warren G. Harding, however, men of the telephone industry—particularly those in Ohio—feel an added personal grief for the reason that he was for many years closely associated with the Independent company of his home town of Marion, and had been keenly interested in the development and progress of the industry as a whole.

Mr. Harding was a frequent and welcome attendant at the telephone meetings in Ohio, and on more than one occasion was the principal speaker at state conventions and similar gatherings, where invariably his manly sincerity and genial kindliness won for him the respect, admiration and affection of all who came within the range of his gracious spirit and unfailing courtesy.

* * * *

Support of home enterprises and loyal coöperation with one's neighbors were cardinal principles in President Harding's code of life, and he took a genuine delight in putting them into action. Secretary Hoover expressed it very well when he said Mr. Harding desired to be a "good neighbor" to everybody.

And Secretary Hughes indicated that he also understood the dead President's character when he called him "the greatest American" who ever sat in the White House—meaning, thereby, that no man ever felt a more glowing pride in the qualities and achievements of the average citizen of our country.

These traits made him love and cherish the simple things of life, and won for himself the loyalty and affection of all who sensed the charm of his personality and knew the depth of his Americanism.

* * * *

Time undoubtedly will add to Warren G. Harding's fame, and nullify the complaints of some critics because he proceeded deliberately.

His cabinet was composed of the best timber available, and under his leadership men like Hughes, Hoover, Mellon and Weeks—all masters—gladly coöperated with the late President to make America better, stronger, more worthy.

* * * *

One striking instance of President Harding's liberal ideas, and his sagacity, now shines out in a bright light. When his administration began he declared that the vice-president should no longer be a figurehead, but that he should sit with the cabinet, participate equally in governmental affairs and share alike in the duties and honors of the administration.

It was a thoughtful, generous impulse, truly characteristic of a man who was ever kindly and courteous.

Today, our new President, Calvin Coolidge, holds the reins of government, fully advised of the important problems at issue and fully equipped with a knowledge of all that has taken place in the cabinet councils since March 4, 1921.

This is due to the kindly wisdom of Warren G. Harding, who sincerely desired to be a "good neighbor" to everybody. It might, in fact, be considered an excellent proof of the eternal value of the Golden Rule.

The country already has shown its appreciation of this phase of the situation, and manifested a confidence that the new President, thanks to Mr. Harding's policy, has been in direct training for the tremendous task that fate has thrust upon him.

* * * *

The transfer of presidential authority to Mr. Coolidge was completed under picturesque and unusual conditions. While Mr. Harding lay ill on the extreme western boundary of the country the Vice-President was spending his vacation with his father, 3,000 miles away on the old farm in Vermont, so remote from the beaten paths that it didn't even have a telephone.

When news first came of Mr. Harding's illness a telephone line was hastily extended from the little town of Plymouth to the homestead, and it was over that wire just placed in service that the message was relayed informing Mr. Coolidge that he had become the head of the nation.

The administering of the official oath by his aged father, acting as a humble notary public, at midnight in the homely parlor of a modest farm-house, was another incident of this momentous event which adds to its impressiveness.

As an inaugural, it may have lacked the pomp and ceremony of the usual Washington function, but its democratic sim-

plicity will have an appealing significance to the American people.

* * * *

Undeniable evidence of the vast difference between private and public operation of a communication system is found in an article printed in a Quincy (Ill.) newspaper, complaining about the slipshod maintenance of the city police telephone stations.

The stations are for the patrolmen to use in reporting to police headquarters and giving fire alarms, but the newspaper protests that the municipal apparatus is in such a run-down, dilapidated condition that transmission is practically impossible.

To correct this dangerous situation the city has employed a telephone expert to inspect the system and determine if it can be overhauled and put in working order, or if it must be "junked" and an entirely new installation made.

Under the political control of the municipal authorities the police wire system has been allowed to go to ruin. Private operation would have been forced to keep up maintenance so there would be service. That is the difference between political management and private management.

Pulling political wires and keeping telephone wires in efficient working shape do not harmonize very well.

* * * *

Public service companies almost invariably have to pay more than their share of the taxes. It is refreshing, therefore, to notice that in Ohio several utilities are combining to make a fight in the courts to remedy the situation and force a correction of the inequalities in taxation so far as they are concerned. Several gas companies have filed suit in the federal court to enjoin 37 counties from collecting taxes alleged to be inequitable.

It was pointed out in the petition filed that two of the service companies in December, 1922, paid over $396,000 in taxes, while the total amount assessed was but $792,000. In other words, the two utilities paid just about half of all the taxes collected in these tax districts.

* * * *

Another unfair condition to which Ohio utility corporations are rightfully beginning to object is the fact that the state commission is supported entirely from assessments levied upon the railroads and the service companies which it regulates. The legislature treats the commission in a niggardly manner, and each year the balance remaining from the assessments paid by the utilities is being turned back into the state treasury to help pay for running the other departments of the state.

This is generally considered an irregular situation, and a demand is being made that the commission be properly supported by state appropriations, and its work placed on an independent, business-like basis.

The Principles of Public Relations

Supreme Problem in Public Relations Is Education of Public—Friends, Feelings and Facts—Address before Joint Meeting of National Electric Light Association, Southwestern Division, and Oklahoma Utilities Association

By J. W. Gleed

General Attorney, Southwestern Bell Telephone Co.

It is perhaps proper for me to say at the outset that I am here just as a citizen of the United States and not as the representative of the company by which I am employed. What I shall have to say may, or may not, reflect in every way the views of my company.

A few years ago the citizens of San Francisco passed a law reducing telephone rates. Observe, please, that the *citizens* passed it; not the legislature, not a commission, not the city government. The *voters* passed it.

It was an initiated measure—that is, a measure placed before the voters by the petition of a certain small number of private citizens representing only themselves. There was no hearing, no evidence, no debate. The users of telephone service concluded they were paying too much, and so they voted to pay less.

At the same election the people recalled a judge because of the unpopular decision he had made.

In Missouri we have this same institution of initiative, and next fall, on the petition of a comparatively few voters, we could, I suppose, have a popular vote on universal statewide telephone exchange service at a dollar a month and toll service at ten cents a call. I do not, of course, think that any such thing is likely to happen. I am merely pointing out that it might happen.

And the power of the public is by no means confined to states where the initiative and the recall have been adopted. In nearly all the states there exist public bodies having power to fix rates; and while all states have constitutions providing in substance that our property shall not be confiscated, yet constitutions can be changed; and furthermore, the enforcement of constitutional provisions depends on men—men selected by the people, paid by the people, and not subject to instantaneous recall, yet always subject to recall at the end of their respective terms.

We have, of course, the national constitution and the federal courts, but we have those only so long as the sovereign people permit; and that might not be forever. And, finally, constitutions and laws are as mere scraps of paper, anyway, unless they exist in the minds and hearts of the people. Mexico has a beautiful paper constitution, but very poor government.

It is to be observed, furthermore, that while farm property, for example, has for its protection a great multitude of farm voters, utility property has practically no votes behind it at all. Stockholders are numerous in one sense; but stockholders, plus employes—if employes choose to vote with the owners—amount to very little when compared with the whole number of voters.

The Bell system in the United States has in round numbers 250,000 stockholders and 250,000 employes, but there are 160 voters to every stockholder. Of course, our "indirect" stockholders—that is, the creditors of the savings banks and insurance companies owning our stock—are very numerous; but their interest is too indirect to make them of material use to us.

The fact is that the company by which I am employed, the Southwestern Bell Telephone Co., has scattered about 150 million dollars' worth of property over and under the streets and highways of five states and in the houses of Thomas, Richard and Henry; and there it is, all in the possession of the people! Much of it the law would not let us remove; much of it it would not pay to remove, even if the law made no objection.

There it is, out of doors and in the hands of the people, subject to the jurisdiction of the governors, legislatures, judges and commission, and taxing officers and public rate-makers, about whose

selection we have scarcely a word to say. To state the whole matter briefly, we are in the hands of the public; the *public* is our master. In the end we are compelled to accept as a reward for our endeavors just about what the intelligence and moral sense of the public awards us.

Now so far as moral sense is concerned, I think that our patrons and the patrons of all utilities are, taken as a whole, disposed to deal fairly with us, *so far as they know.* This may not be so in every instance, but generally I think it is true. Generally speaking, our patrons are disposed to be fair; but if not, there is no use getting mad about it.

If the public isn't disposed to be fair, it is still true that the public has the *power,* and it is our job to try to persuade them to be fair. And one of the best ways in the world to make the public fair and patient and considerate is to be fair and patient and considerate ourselves.

We are all human beings. We think that we are entirely reasonable; we have a conscience; we have a sense of duty; we are fair; we are, anyhow, intelligent, and intelligent self-interest leads generally to the same line of conduct as conscience and a sense of duty. I hope we have all the virtue and intelligence we think we have. I hope we would hesitate longer to exact a rate reasonably high than the public would to impose a rate unreasonably low. I not only hope it, I believe it! But we are all human beings and it is easy to deceive ourselves. Anyhow, before we censure the public too severely on the score of unfairness, let us be sure we are ourselves beyond criticism.

There is an injunction which runs: "Judge not that ye be not judged"; there is a story about a beam and a mote. In brief, there is a book called the Bible which contains more sound political economy than any other book ever written.

It is pleasanter to think about the sins of others than about our own; but really it is not so profitable. If we want the public to be fair and just with us, we must be scrupulously fair, just and considerate towards each and every subscriber. I suppose we and our patrons are made of about the same material. We are both fairly reasonable, and both reasonably selfish. Morally, both we and our patrons are all pretty good people.

Our patrons have a disposition to be fair *as far as they know.* But the difficulty is to get them to *know.* We know, of course; it is our business to know—but the public doesn't know. The public exercises the power of life and death over 30 billions or more of property in the United States; railroads, street railroads, interurban railroads, telephone and telegraph plants, and water, gas, light and power plants.

The public has a general disposition to be fair toward this property, but it knows nothing about it. It is easily misled. It isn't really conscious of its own power and, therefore, it is not conscious of its own responsibility. Now it seems to me —and I am voicing only my own personal opinion—it seems to me that the supreme problem in the domain of public relations is for the owners of this 30 billions of property *to educate the public*—to cause the public to know—to establish in the minds of the public sound opinions and sound theories about how this property should be handled.

UNDERSTAND PEOPLE.

Psychology is a big word. Let us substitute for it knowledge of human nature as a stone in the foundation of business success. It would not do to say this is indispensable. Sheer efficiency can cleave a path, or force can plough ahead. But just as a well-oiled machine runs better than a squeaky one, so the way through business life, or any other walk of life, is made easier and certainly more enjoyable by an understanding of the people we meet, whether in buying or selling or in the many little contacts that business affords.—Joseph French Johnson, Dean, N. Y. University School of Commerce.

The public, I know, is a pretty numerous and busy and unmanageable body; and an adequate knowledge of any one of these different kinds of industry is almost a lifetime work for any man with everything else neglected. What then do I mean by "getting the public to know"? What can the public be got to know? The public cannot know, of course, what the general manager knows or should know. The public cannot know the details of any of these different businesses. But there are a number of general principles, a number of economic laws, a lot of political and psychological truths, all bearing on the proper treatment of public utilities which the public *can* be brought fairly well to understand. Even that is a tremendous undertaking, but it seems to me to be a *necessary* undertaking, however great it may be.

Let me mention some of the things which the public can be got fairly well to know.

The public can be informed, *if it is a fact,* that the commodity or service which you furnish is a very useful commodity or service, and that you very earnestly desire that it shall be as good and as useful as possible. And if this isn't a fact in your case, it had *better* be!

You are a monopoly or quasi-monopoly and you are a corporation. There is a certain amount of prejudice against monopolies and corporations. The public can come to appreciate that such prejudice is foolish and harmful. A corporation is just a convenient tool which society has created in order to satisfy a need or want. It is no more to be hated than any other tool—no more to be hated than a plow or a spade.

You are a monopoly only because the needs of the community can best be served by a monopoly. A single company can give better and cheaper service in the long run than two or more companies in competition could give. You are a monopoly or quasi-monopoly because in the very nature of things you *ought* to be.

The public can be brought to see that although you are a monopoly, you are, as a matter of fact, more patient and considerate and anxious to please than people engaged in competitive business are. They can be brought to see this, I say, provided it is *so*—and it *ought* to be so.

Utilities *ought* to be more anxious to please, more anxious to make their work perfect than people in other kinds of business. If a man has been or thinks he has been wronged by his grocer, he gets relief by going to some other grocer, but if he thinks he has been wronged by a monopoly, his anger sinks in and sours, so to speak—and that is mighty bad for the monopoly. We ought, therefore, to do a *better* job of serving than anybody else.

You utility people must be *more* polite and *more* kind and *more* considerate and *more* reasonable than anybody else, because you have prejudices and erroneous opinions to overcome.

Before you can correct erroneous opinions you need to find out what these opinions are—and how they came into existence. In other words, you must exercise patience and tolerance and broad-mindedness, *and really get hold of the other fellow's view.*

Doubtless, there are some persons, both in Oklahoma City and elsewhere in the United States, who think, or think they think, that the Bell telephone system is a vast, remorseless, unscrupulous, conscienceless, selfish, rapacious, well-nigh omnipotent giant; dishonestly organized, dishonestly capitalized, dishonestly conducted, and engaged in extorting fabulous sums of money from a defenseless people, because by some mysterious and nefarious process they have secured the *power* to do so. I don't think that overstates the impression of some people.

As a matter of fact, they are entirely wrong. The Bell telephone system has been honestly capitalized; it is honestly conducted beyond any other business I have ever known; it is *not* omnipotent but *is,* in the long run, entirely dependent on the good will and fairness of the people.

And so I say: In all our transactions with the public let us remember these things—remember the power of the public —remember the prejudice of the public for which the public is not wholly to blame. Let us remember that the public

does not know the facts and the troubles of our business. Let us be patient, tolerant, courteous and fair. Let us be *more* than fair; reasonable and *more* than reasonable.

Remember that it is your duty not only to *be* fair and reasonable, but to convince, to persuade the public, that you *are* fair and reasonable. Meet unkindness with kindness; meet distrust with trust. Be friendly anyhow. Any fool can make enemies for himself and his company. It takes a big, broad, kind-hearted man to turn enemies into friends.

"Die when I may," said Abraham Lincoln, "I want it said of me by those who know me best that I always plucked a thistle and planted a flower whenever I thought a flower would grow."

Plant flowers, not thistles. Almost anybody you deal with *needs* kindness—the meanest, most of all. Try honestly and hard to see the other fellow's side, to see it as he sees it; to understand how he came to see it so, and to feel so about it. And, remember it is quite possible for you to be in the wrong. Everybody makes mistakes. Maybe you did. Very often you are right; very often you may have the power to settle it right; but the thing has been settled only *half* right if the other fellow hasn't been persuaded that it *is* right.

Don't argue too much nor use too much logic. If you go out to investigate a complaint start in, not with argument but with sympathy. Don't try to drive a man; lead him. If he thinks he has been wronged, he deserves your sympathy whether he has been wronged or not.

He may be suffering from a wrong; or he may be suffering from a wrong impression of his own; in either case he is suffering. Sympathize with him. He may be wrong but he isn't wrong as often as you think he is. He may be only half wrong. Now and then he is wholly wrong. First find out how he came to feel so; there is generally some excuse for it.

What we want mainly is *friends*—and only enough money to live on. Friends are the main thing. There are stores in my town into which I never go except from dire necessity because all the salesmen and saleswomen—especially the saleswomen—seem so hostile, so listless, so sorry I came in, and also so unspeakably dull and stupid and tired. There are other stores where it is a pleasure to go. So far as it is possible we, of all people, must make our patrons *glad* to do business with us.

I know the public is often unreasonable because, as a member of the public, I have several times been unreasonable myself. I remember some years ago, when electric light was quite a new thing, my office in Topeka was lighted on a flat-rate basis. The company gave me what light I wanted for $7.50 a month.

Finally they sent word they were going to put me on a meter. I objected. What did I know about a meter! Probably it was a fraud. Under the flat-rate system I knew just what I had to pay each month. Here was this omnipotent greedy monopoly trying to put something over.

So I objected and raised a protest and threatened injunction and mandamus and *quo warranto* and *noe exeat regno* and all the other legal remedies I could remember the Latin name of; but the light company went remorselessly on and put in that meter—and I never had a bill to exceed two dollars and a half a month thereafter!

You see I know mighty well what it feels like to be the public.

Of course, in this day the light company wouldn't just go to work and *make* that change; they would send around a man to explain the justice of it; to explain the fact that to measure the service would stop waste and reduce the total cost and benefit both the company and the total body of users; and maybe gently to intimate that the result would probably be to reduce my bill.

I remember another occasion of a somewhat similar nature. I went into a jewelry store to buy a wedding present. It seemed wise to consult my wife. I called her over the telephone. The line was reported busy. I waited what seemed an age. I said, "Aha! Something wrong here!" So I took out my watch and called every five minutes for 20 minutes.

The line was still busy. Then I knew something was wrong. So I called up the chief operator and told her who I was and that it was absolutely necessary for me to talk with Mrs. Gleed. She recited the rules, but I insisted and she finally yielded.

The next thing I heard was my wife's voice saying: "Willis Gleed, what do you mean by interrupting my conversation!"

Well, how could I know that a woman would talk a straight half-hour on the telephone?

Yes, I know that now and then a patron is unreasonable, but I suspect that now and then we may be unreasonable also.

The Bell system—I take my illustrations from my own company because I don't know the facts as to your company—the Bell system has one stockholder and one employe to every 40 subscribers. Perhaps things would run smoother if it were possible to divide up our patrons into groups of 40 and assign one owner and one employe to serve each group. The servants and the served would then live together and know each other and, perhaps, more cordial relations would exist.

But that is impossible. In the nature of things the service can't be given that way. Our owners must act through agents and trustees, and our patrons must act through agents and trustees; and agents and trustees cannot deal with the interests of their principals quite as freely as the agents of the people.

Corporations put vastly greater trust in their representatives than the people do. In this I think the people are wrong. It is thus very often much easier for the president of a company to do exactly the right and fair thing than it is for the utilities commission to do exactly the right and fair thing. I have occasionally been dumbfounded by the distrust felt by some community toward a public service commission. I was not able to understand it.

Here is a commission picked and paid by the people; a commission which is in a sense just a committee of telephone users; it makes a decision granting us only a part, maybe, of what we know we are fairly entitled to; and yet it gets criticized for doing even that much. Every personal interest says to them: "Pinch, haggle, squeeze; solve every possible doubt in favor of the subscriber." And maybe they do that, or maybe they disregard personal interest and do exactly the right thing; and yet they get blamed.

For this reason it is my personal view that we ought to go directly to our patrons as much as possible. We ought to make our patrons know our troubles; we ought to make our patrons hear our reasons; we ought to require that our patrons comprehend not only our tasks and troubles and position but the tasks and troubles and position of their own representatives.

No commissioner, no trial judge, no supreme court, enjoys raising rates—at least I never knew one who did. If the judge decided the case of *Smith versus Snodgrass* for the plaintiff he decides against one man. But if he decides a light case in Oklahoma City in favor of the company, he decides against pretty nearly every voter in town. Judges do that—all honor to them—but it isn't human nature for a judge to *enjoy* doing that. And this the people ought to be brought to see.

The people must come to see the difference between feelings and facts; the necessity for respecting and being governed by the facts; the toilsome processes by which facts must be established; and that nobody has a right to an opinion unless it is based on knowledge; that one man, who *knows*, is worth a thousand who guess and assume and talk; that their real friend is not the man who tells them a dozen pleasant lies but the man who will tell them one unpleasant truth.

(*Please turn to page* 32.)

SIZING UP A MAN.

Look in a man's eyes for honesty; around his mouth for weakness; at his chin for strength; at his hands for temperament; at his nails for cleanliness. His tongue will tell you his experience and under the questioning of a shrewd employer prove or disprove his statements as it runs along.—George Horace Mortimer.

The Great Price Slump in England

Discussion of Causes, Course and Limits of the Slump in Prices Which Commenced in April, 1920, Published in The Telegraph and Telephone Journal—An Engineer's View of Price Levels Based on Tolerance Limits

A most interesting and exhaustive article entitled, "The Great Slump in Prices; Its Causes, Its Course and Its Limits," was recently published in The Telegraph & Telephone Journal, of London, England. It was written by G. F. Mansbridge, from the standpoint of the engineer, and while applying particularly to British conditions, it naturally takes into consideration prices in the United States as well as England.

In writing the article, Mr. Mansbridge endeavored to visualize the economic position with the eye of the engineer, dealing especially with the limits of prices which the consumer will tolerate and forecasting the permanent tolerance which the world can afford to allow with respect to price levels as compared with 1914.

As the forecast deals with the general level of world prices, it is necessarily based upon gold prices, so that fluctuations in relative values of currencies are eliminated. The cognate but separate question of price movement, in relation to inflation of currency, is also thereby largely excluded.

Although cycles of good and bad business—with their attendant high and low prices—are now quite familiar and something is known about the causes underlying the cyclic movements, less is known about the factors which limit the extent of the upward or downward swings, or about those which give a bias to the spring so that the pendulum no longer swings equally to each side of the old zero. It is to these two factors, rather than to the swing, that Mr. Mansbridge devotes his attention.

He first presents a review of the causes of the great and world-wide fall in prices which began in 1920 and which is still in progress. He points out that the riot of price inflation in England reached its climax in April, 1920, and comments that the prices of copper, tin, jute, hides, and of certain grades of wool, after soaring to unprecedented heights in 1920 had, by the end of 1921, fallen below even the 1913 level.

So far as the business of manufacturing telephone and telegraph apparatus is concerned, the effect of the slump was at first toned down by the fact that much work was in arrears owing to the war. The upward revision of telephone charges in England, beginning in April, 1921, resulted in a reduction in the demand for service and this was later followed by reductions in the prices quoted by the telephone factories as competition became more and more keen to secure the small amount of new business.

"Manufacturers say," states Mr. Mansbridge, "that some of these reduced prices are merely temporary to keep the plant going; that remains to be seen. At any rate, a large part of the inflation has disappeared, though we have still a long way to go before we reach the economic level in certain branches of trade."

Wage basis and the readjustment of price levels are discussed by Mr. Mansbridge, as are also the matter of price

G. F. Mansbridge, Assistant Controller, Post Office Stores Department, London, England, Believes Prices Will Drop to 120 Per Cent of 1914 Prices.

levels and the standard of living in their relation to individual efficiency.

After a consideration of commodity prices as related to production efficiency, Mr. Mansbridge concludes that there are great possibilities that prices in general will in time be brought below the pre-war level; at any rate, with many items. For most commodities, he states, however, it seems likely that many years must pass before the sum of all the economies due to cheapened processes of manufacture and to increased production per man-hour, suffices to set off in their entirety the additional costs arising out of the higher standard of living—now practically universal among the white races—and the shortened working week, quite apart from increases in cost due to higher taxation, higher rates and other cognate results of the war period.

Nevertheless, as soon as the fact becomes fully realized that a higher standard of living can be had only by earning it, Mr. Mansbridge believes that the tremendous driving force behind the world-desire for that higher standard will prove irresistible.

After a brief discussion of freight and transport charges and war debts, Mr. Mansbridge takes up the consideration of the ultimate level of prices. His conclusions relative to this are of such general interest that they are published in full:

Ultimate Level of Prices.

"And now, what are the ultimate limits to the great slump? Or, preferably, what is to be the new level of stability in world prices, and when is that stability to be attained?

Under present conditions neither question permits of a real answer, but a closer estimate can be made in regard to the level than in regard to the date.

As to the new level, general opinion seems to favor 1½ times pre-war level, but no cogent reasons are as a rule forthcoming as to why 1½ should be chosen in preference to any other multiplier. In my opinion 1½ is much too high. The lowest estimate I have seen is that of A. H. Gibson, who, writing in the Bradford Chamber of Commerce Journal for December, 1920, gave 1¼ times pre-war as his forecast, but even this figure, I think, is too high.

To fix our ideas let us hark back to pre-war times. World prices were then approximately stable; the index figure representing the price of general commodities did not change by more than a small percentage over a whole year.

In those days what determined the level at which prices in general were stabilized? Clearly it was the arrival at equilibrium between the opposing economic forces at work—that is to say, world-prices—and world-consumption were forced to find such a relative adjustment that their product, world expenditure, did not exceed world-income. The world cannot, for any length of time, pay for what it does not earn, hence its total spendings must be determined by its total earnings. But a rise in the world-price-level of commodities tends to have a greater effect on total spendings than on total earnings, because the whole population spends, whereas only part of the population earns; to restore the balance, consumption falls.

To take an example, stripped of refinements, one may say that a rise of 50 per cent in the general wage level adds 50 per cent to the earnings of the part, but puts up by 50 per cent the price of commodities to the whole; hence the earners can buy no

more and the non-earners can purchase only 100/150ths of their previous consumption.

This reduced consumption, even though it be of a small minority only, produces in the long run a reduction in cost, for it is as true in economics as in physics that large masses respond ultimately, though slowly, to the repeated impact of very small masses; I therefore regard the small non-earning part of the population as providing the controlling influence which limits the extent of a permanent increase in prices.

The actual procedure is, of course, complex and may occupy considerable time, but as the reduced consumption hits both employer and employed, it becomes to the interest of both to reduce the cost of production.

Accepting then, that it is the non-earning or fixed-income class which, with others of a cognate character abroad, acts as the inconspicuous governor controlling the big machine, the question arises within what limits do the governor control? What upward tolerance can be allowed to price-movements before such control becomes effective? The record of price movements in the past gives us some guidance, for although the economic conditions of today differ greatly from those of a century ago, the period which affords the nearest parallel, fundamental principles remain unaltered.

The economic data gleaned from the history of remote and recent decades suggest that a permanent (sudden) increase of 20 per cent in world price levels is quite the maximum which could be tolerated, i. e., without passing the limits at which the governing force would begin to make its influence appreciably felt.

On this basis, and having regard to the fact that, had it not been for the war, a reduction in the index number for commodities would soon have been due, 1914 having been well above the normal, I come to the conclusion that, subject to the machinery of world economics being restarted within the next two or three years the level of commodity prices should within a few years of such restarting—say by 1930—settle down at a new normal which should be not more than—probably less than—20 per cent above the level of 1914.

This may sound unduly optimistic; critics may urge that the wish has been father to the thought; I think not. May I add a reminder that the word 'normal' is derived from norma, a carpenter's square, implying that for a normal to be stable and permanent it must be set 'four-square to all the winds that blow.' We may be a long time in arriving at the normal now forecast, but I can see no real stability until we attain it.

The present partial revival in trade will no doubt result in some increase in price levels, but the drop will be resumed after a while; there may, indeed, be several such revivals but the general tendency will, I am convinced, be downwards. The level of commodity prices in this country being about 160 (1914 = 100) the attainment of 120 involves only a 25 per cent drop from present levels; expressed in this way it perhaps appears more possible of early realization; 120 on 1914 basis would be equivalent to about 133 on 1900 basis.

Return to Gold Coinage.

"Notwithstanding the chaotic economic conditions elsewhere, we are now in a position to visualize the return of the pound sterling to its gold parity. Its recovery from the depths of depression has been helped enormously by the confidence felt throughout the world in the financial soundness and stability of this country, as well as by increased recognition—tardy but growing—of the fact that under modern conditions the world is an economic whole in which no country can live to itself.

In that near future when, as we hope, we shall again be able to buy 4.86⅔ dollars for a one pound note, the question will arise whether we shall once more see in circulation the gold coins which before the war were more in evidence in the daily life of the people of this country than was the case in any country in the world.

Assuming parity to have been reached and adequate gold reserves to have been accumulated, I hope that gold circulation will recommence, for I believe that the use of gold coinage subtly encourages personal economy by the sense of inherent value which the noble metal so well conveys but which the paper lacks.

There are those who believe that apart from the loss of potential bank credit thereby resulting, it is an economic crime to permit so valuable a metal to suffer the waste inevitable from its daily use as currency; in 1914 gold coin to the value of £78,000,000 was in circulation in this country, and the annual loss due to wear was less than £30,000 per annum. Such loss is admittedly waste but, in the limit, is it not one of the wastes which it pays us deliberately to incur? Is it not on a par with our peace-time procedure of sending our warships all over the world, burning fuel and consuming all kinds of stores —an uneconomical procedure which we call "Showing the Flag"?

So long as the procedure is kept within limits, is the process ultimately uneconomical? I think not. I believe the use of gold coinage to be one of the means helping us to maintain our national self-respect and our prestige among the nations of the world. In pre-war days the freedom of its use was one of the things specially noticed by the stranger within our gates, and the English sovereign was the current coin of the realm in at least one foreign country, owing no allegiance to us.

Hence, even if the objection of the economic text-book were valid, I would waive it, turning in preference to the Great Text Book where I read:

'There is that scattereth, and yet increaseth; and there is that withholdeth more than is meet, but it tendeth to poverty.'"

Iceland's Development Not So Small as May Be Supposed.

"Nowhere more than in Iceland have the telegraph and telephone abolished distance," writes E. M. Newman in a recent number of the Mentor. The island is webbed with lines, he adds, and the farmers are in constant touch with all parts.

This statement will come as something of a surprise to the reader who still has the age-old misconception of this little known island which gave it its rather forbidding name. There is ice in Iceland, as the trouble-hunters and repairmen of its telephone system, who meet the sleet storm problem in its most acute form, are prepared to testify. But the Gulf Stream warms its southern and western shores, where the summers are extremely mild, and its larger cities have little reason for apology when compared with their sisters of the European continent or America, insofar as progress or prosperity are concerned.

The telephone in Iceland is still in its infancy, the first stations having been opened in 1906, but has undergone a development that has been extraordinary, in view of the difficulties encountered, the first of which was indifference or even open opposition on the part of the population or their parliamentary representatives.

Curiously enough, the communications system has far outstripped facilities for transportation. The wires have been extended well into the interior of the island, while there are no railways and few rail highways, the island pony, a stalwart little animal capable of doing 20 miles a day, being the only means of inland travel.

Recent reports from the manager of telephones and telegraphs at Reykjavik, capital of the island, show that Iceland had, at the end of 1921, a total of 97 telephone centrals and 2,360 telephones.

With an estimated population of 96,000, this gives a per capita telephone development that compares favorably with that of many parts of the European continent. The total wire length of the interurban telegraph and telephone lines is over 7,500 kilometers.

Prices in the Metal Markets.

New York, Aug. 6.—Copper—Easy; electrolytic, spot and futures, 14⅜@14½c. Tin—Steady; spot and nearby, 38.12c; futures, 38.12c. Iron—Steady; No. 1 northern, $26@27; No. 2 northern, $25@26; No. 2 southern, $24@27. Lead—Steady; spot, 6.50c. Zinc—Easy; East St. Louis spot and nearby delivery, 6.15c. Antimony—Spot, 7.70@7.80c.

Iowa Operators Talk Things Over

The Part Taken by the Patron in Telephone Service — Pleasing Manner of Operator Strengthens the Public Relations of the Company — Papers Read at Schools in Iowa Held Under Auspices of the Iowa State College

Things the Telephone User Should Know.

By Mrs. V. Reeves. *Chief Operator, Graettinger Telephone Co., Graettinger, Iowa.*

It has been said, "Intelligence is the secret of the universe," and that "Knowledge is power." Particularly are these sayings true when applied to the use of the telephone. Most of the trouble between operators and patrons is due to misunderstanding. It would lead to better relations between operator and patron if the latter had a more intelligent understanding of the use of the telephone.

The patrons little realize how much their voices over the wire give others, especially the operator, an insight to their real dispositions. Telephone calls either make or mar friendship.. Conversations over the telephone may make big sales for a company or ruin sales for them. Much depends on the tone of voice.

So with the operator, it is very essential to use a pleasant, courteous voice at all times and in this manner teach the telephone user one important lesson in the use of the telephone—courtesy.

The majority of telephone users little realize just what their ignorance concerning the use of the telephone costs the operators and telephone company each day. As a rule the patron ringing for Central has the idea that he is the only one to be answered. From experience we all know, when using the telephone, that a second while waiting for Central to answer seems much longer than it really is.

Oftentimes when an impatient party is calling, this remark greets our ears: "Well, were you asleep, or did you just wake up?" Such remarks are all uncalled for, but present an opportunity for the operator to bring her pleasing manner into display, explaining that a very important message was being repeated or that there were prior calls waiting to be answered. Give the patron some pleasant explanation.

In small exchanges like ours, where there is one operator working at a time, we oftentimes are looked upon as weather prophet, timekeeper, train dispatcher and authority on the price of butter and eggs. By some patrons the operator is supposed to know when the mail man left for a certain route, or if he got stuck in the mud or broke down. Anyhow, the operator ought to know just why the mail man failed to bring the mail. If the patrons fully realized how busy the small exchange operator is, most of them would conscientiously study how to use their telephones to the best advantage for themselves and the operator.

One important thing the user should know is how to care for his telephone. In the average home the telephone is the most misused piece of furniture in the house.

Some patrons have the idea that the operator is responsible for everything that goes wrong with their telephone, when their own misuse often will cost the operator time and worry trying to get them. There are cases where the lineman has been called upon to drive miles over poor conditioned roads, when the trouble might have been avoided had the telephone been taken care of by the user. For example: One day a woman called in and said, "Come out here and fix this telephone. People say they can't get us and I've been right here in the house all the time."

The operator asked her to hang up her receiver and she would ring out, which was done. The complaining party answered and said, "Oh! I see what the trouble is. The other day I put Baby to sleep and I stuffed the bells with paper so they wouldn't ring and wake her up, and I forgot to take it out again." I'll leave the thoughts of the operator to your imagination.

Telephone users, on ringing the operator, should wait two minutes at least before repeating the ring. They should always call by number, looking it up before ringing Central. Thus no time will be wasted by the operator waiting for the user to look up the number of the party called.

Users of the telephone should remember that others are waiting to use the wires and should make their conversations as brief as possible, not holding the wires longer than five minutes. If the parties have been disconnected before that time, it is their privilege to ring in and report disconnection.

Another important item is that users should be very careful to always hang up their receivers when through using the telephone. Neglect to do this often causes difficulty in ringing them back on the line.

In a way, the operator holds the same relation to the patron as a teacher to her pupils. She must really study the individual patron as all patrons are not to be dealt with the same way. A nervous, flighty telephone user cannot be handled in the same manner by the operators as one of a steady, pleasant disposition. The operator with patience and perseverance can do much toward teaching the nervous patron the correct use of the telephone.

In the small telephone exchange when the patron comes into the office, the operator, if she is not too busy, has the opportunity of drawing him into conversation and eventually leading up to telephone work and the duties of the operator, thus making him acquainted with something of how the work of operating the switchboard is done. Many times the most exacting patron, after an explanation, will say, "Well, I'll never complain again when I can't get Central. I never realized before just how busy the operator is."

When a party is being called, the called party should answer his telephone by saying "Singer's residence," or "Mrs. Singer speaking," or, if a place of business, answer by naming the place of business, as "First National" or "meat market," whichever the case may be.

In placing long distance calls to the operator, the patrons should speak directly into the transmitter. They should be sure they are giving the correct number and name of the party and station they are calling; in fact, know exactly who and where they want to call before ringing the operator so as not to keep her waiting on the line.

When the operator reaches the party wanted and rings back, the patron should answer the telephone promptly. Neglect to do this often holds up the wires from being used by others.

In conclusion, every operator wants to be a friend and helper to the patron in every reasonable way, and the operator should strive in every way to bring about this friendship. At times, a cross, irritable answer by the operator seems easiest but using "the voice with the smile" to each patron is the best way to teach the proper use of the telephone.

Relation of the Operator to the Public.

By Amilla Comer, *Mallard, Iowa.*

The relation of the telephone operator to the public seems a very simple topic, but I find upon investigation a great many points which we must consider.

The telephone company is one large firm; its center is located in the heart of every busy business community. Wires are run from east to west, north to south, but wires alone cannot make communication possible. So we have at every center men or women seated at a switchboard, giving their best for the service of the community.

We will consider the operator as the employe of this great firm. And it will be her duty to sell the best material she has, which is service.

The subscriber of this company is the customer. Of course, they want the best, but they must remember that their clerk is often very, very busy and they will have to wait a short time or call again in a few minutes.

The commodity which this firm must sell is service. The success of any business depends upon the quality of the product which it puts out: therefore, the success of the telephone company depends upon the operator who is producing the service.

There are several reasons why the operator should endeavor to put forth every effort to give the very best service possible.

First, an operator who wishes to make a success at her chosen vocation will do her very best.

Second, the success of the company which is giving her employment depends on the service she puts out. It is not only giving her company a good name but will give the operator higher standing socially among the people of the community.

The operator also finds that it pays to be kind and courteous to everyone.

The operator has by no means an easy task to perform. It takes all sorts of people to make this world and it is with these that the operator must contend.

Impatient and harsh words often tempt an operator to become discouraged—but we must remember our customers speak often without thought, and we let the slight misunderstanding pass unnoticed. We will say as Stonewall Jackson said: "Duty belongs to us, conclusions to God."

Chief Operator in the Small Office a Many Sided Person.

By Mrs. Cora Hymer, *Chief Operator, Ruthven Telephone Co., Ruthven, Iowa.*

The duties and responsibilities of the chief operator vary according to the business system used.

While the larger offices have need of the chief's supervision over the operators, and otherwise acting as general manager of the operating force, a small office like ours, with three regular operators, makes no such demands, and the chief acts as a regular operator.

She acts as "Information," answering all questions from patrons; receives their complaints; has all line troubles adjusted as soon as possible and answers all questions from outside offices in regard to her office and its work. She attends to the checking with the toll centers.

She makes up the directories and has them printed; secures a new operator, in case of vacancy, and oversees the training of the new girl.

In our office we try to keep two relief girls; in case of sickness or vacations, we thus make sure of having the usual work move on in the usual way and give our patrons the service they have a right to expect.

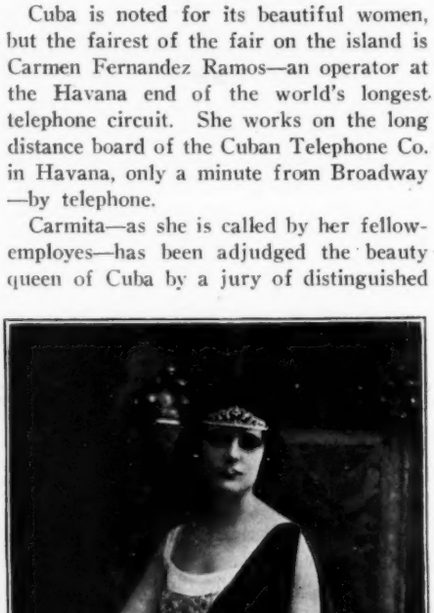
In some offices the chief operator is expected to do the collecting. In our office the general manager and secretary-treasurer relieve the chief operator of that and many other things.

Our directors meet once a month, and at this meeting a report of the month's work is furnished by the office.

The Most Beautiful Girl in Cuba Is a Telephone Operator.

Cuba is noted for its beautiful women, but the fairest of the fair on the island is Carmen Fernandez Ramos—an operator at the Havana end of the world's longest telephone circuit. She works on the long distance board of the Cuban Telephone Co. in Havana, only a minute from Broadway—by telephone.

Carmita—as she is called by her fellow-employes—has been adjudged the beauty queen of Cuba by a jury of distinguished



"True Beauty," Declares This Telephone Operator, the Beauty Queen of Cuba, "Comes from Noble Thoughts and a Cheerful Disposition."

art critics, and she won the title from a large number of contestants. After she had been given a majority of about 100,000 over her nearest rival in the voting contest in Havana, she had to take her chances before the jury with scores of other winners of local contests.

During the days of the voting, she received much assistance from her loyal co-workers of the Cuban Telephone Co. and from broadcasting station PWX, owned by the company, but in the final ordeal she had to stand on her own merits.

A glance at her picture tells one that Senorita Ramos is not a "beautiful doll." There is a beautiful character underneath, which has given the real beauty to her countenance. One of her highest attributes is her common sense—well, of course, she couldn't be the good operator she is without having a plentiful supply of that.

She has been on the long distance board of the Cuban company for four years, and she intends to stay at the job because she likes the work. The position she has been accorded as the Venus of the island has not turned her head. She is not much concerned with physical beauty—but believes—she told a Havana reporter who interviewed her—that true beauty "is that which comes from noble thoughts and a beautiful, cheerful disposition that is so necessary to the success of a telephone operator." That is her constant endeavor.

The dress which Senorita Ramos wears in the picture is not the kind of working clothes the Cuban operators wear—nor is it the kind on which they spend their money. The gown is a creation of an exclusive Parisian modiste, and is one of the trophies of Carmita's triumph.

When she's at the switchboard, she wears a simple white blouse and a plain dark blue skirt, like all the Havana operators—and her friends insist that she's just as attractive in this more familiar costume.

Besides a substantial cash prize which Senorita Ramos received from the Havana morning newspaper El Mundo, the provincial government decided to make her a present, and the municipal government is considering a further gift, as well as a public coronation in the chambers of the city council.

Better Telephone System Planned for Irish Free State.

Extensive improvements in the telephone system of South Ireland are planned by the authorities of the Irish Free State. It is proposed to introduce automatic switching in Dublin and other large towns, and a number of underground cables are now being laid.

Until the establishment of the Irish Free State the telephone system in the south of Ireland was owned and operated by the British Post Office. When turned over to the new government, it included only about 20,000 telephones, of which over half were in the city of Dublin.

Even with its 11,294 telephones, however, Dublin is far behind American cities such as Indianapolis, which had 75,325 telephones on January 1, 1922, or Seattle, which at that date had 76,907 telephones. Neither of these cities has as large a population as Dublin.

The Great Problems in Telephony

Solved and Unsolved Problems in Telephony Subject of the Fourteenth Kelvin Lecture before Institution of Electrical Engineers, London—Extracts Which Give Technical Information on Advances in Art—Second Instalment

By Prof. J. A. Fleming, M. A., D. Sc., F. R. S.

When we turn from the consideration of the telephone transmitter and receiver to that of the telephone line, we find a number of interesting problems to which a fairly satisfactory solution has been given of late years. In the young days of telephony it was not at all clearly understood that the inductance of the line plays a more important part in telephony than it does, or at least did, in submarine cable telegraphy.

Hence the early telephonists applied the theory worked out by Lord Kelvin for the submarine cable transmitting relatively low-frequency currents to the telephone cable transmitting high-frequency currents, with the result that erroneous ideas became prevalent.

We owe to Oliver Heaviside, as is now everywhere acknowledged, the enunciation of the true theory of the telephone line and an explanation in 1887 of the causes of, and best remedy for, the distortion of the wave-form of the speech currents it produces.

Transmission Problems of the Telephone Line.

The various harmonic currents into which the complicated electric speech waves can be resolved travel at different speeds along the cable and attenuate at different rates. The short waves travel faster and attenuate more rapidly than the long electric waves. Hence a distortion of the wave-form results, and beyond a certain length of line the reproduced articulate sound becomes unrecognizable by the ear.

Heaviside gave the statement of the conditions which must be fulfilled by a distortionless cable, and insisted upon the necessity for increasing its inductance to approximate to this condition in the case of existing lines.

The late Professor S. P. Thompson in 1891 and 1893 described in British patent specifications various remedies for distortion, and in 1893 read a paper at Chicago on "Ocean Telephony," which drew much attention to the subject. In his presidential address to this Institution in 1899 he strongly urged a practical trial of his suggestions.

As a long telephone cable is a somewhat expensive article practical telephonists were obliged to advance slowly. The introduction of the dry-core or dry loose-paper insulation in a lead sheath, in or about the year 1887, aided in the reduction of cable capacity and was therefore a step in the right direction.

The important papers published in 1899 and 1900 by M. I. Pupin brought within the scope of practical achievement the scientific recommendations of Heaviside as to the increase of inductance of the line.

Pupin showed theoretically and practically that a telephone line can have its inductance increased so as to approximate to the Heaviside condition for non-distortion by the insertion of special inductance coils at equispaced intervals. If these intervals are not much greater than one-tenth of the wave-length of the electric wave travelling on the so-called cable, the coils act as if their inductance were uniformly distributed along the line.

If the impedance per unit length of the line changes suddenly at any point to a higher or lower value, then a wave of electric current travelling along the line suffers partial reflection and partial transmission at that junction, exactly as a ray of light is partly reflected and partly transmitted at the bounding surface of two transparent media of different refractive index, provided that the change in refractive index is very sudden.

In short, the quantity we call the characteristic impedance of a telephone line, which in complex expression is $\sqrt{(R + jwL)}/\sqrt{(S + jwC)}$, where R, L, S and C are the resistance, inductance, leakance and capacity of the line per mile or naut, is exactly analogous to the quantity called the refractive index in the case of light propagation.

If, then, a telephone line has an inductance coil inserted at some point, there is a partial reflection of the electric waves traveling along the line at that point. If coils are spaced apart at distances large compared with the wave-length, the repeated reflections would render the line non-transmissive. If, however, the coils are at intervals short compared with the wave-length, then they are equivalent to a uniform distribution of added inductance along the line and diminish its attenuation.

A quantity of fundamental importance in the case of a telephone line is its *attenuation length* or the product of its attenuation constant and its length in miles. The attenuation constant may be defined as the reciprocal of the length of the line in which the current or voltage falls in the ratio of 2.71828 to 1 or to 36.7 per cent. of its initial value, or by 1 napier.

Telephonists express the attenuating qualities of any line in terms of those of a certain standard cable consisting of a copper core weighing 20 lbs. to the mile, one mile of double core, lead and return, having a resistance of 88 ohms, an inductance of 1 millihenry, and a line-to-line capacity of 0.05 microfarad. This standard cable has an attenuation of about 0.1 per mile, which means that in 10 miles' length the current or voltage drops in the ratio of 2.71828 . . . to 1, or by 1 napier.

The extreme limit of telephonic speech with simple present-day carbon transmitter, induction coil and Bell receiver is about 40 or 45 miles of standard cable, and for good speech about 25 miles. The attenuation of any other cable is now commonly expressed in its equivalent in miles of standard cable (M.S.C.). Owing to losses in subscribers' circuits and in the exchange connections, the total attenuation in a long trunk line should not exceed that of 15 or 20 M.S.C.

Pupin's Important Contribution.

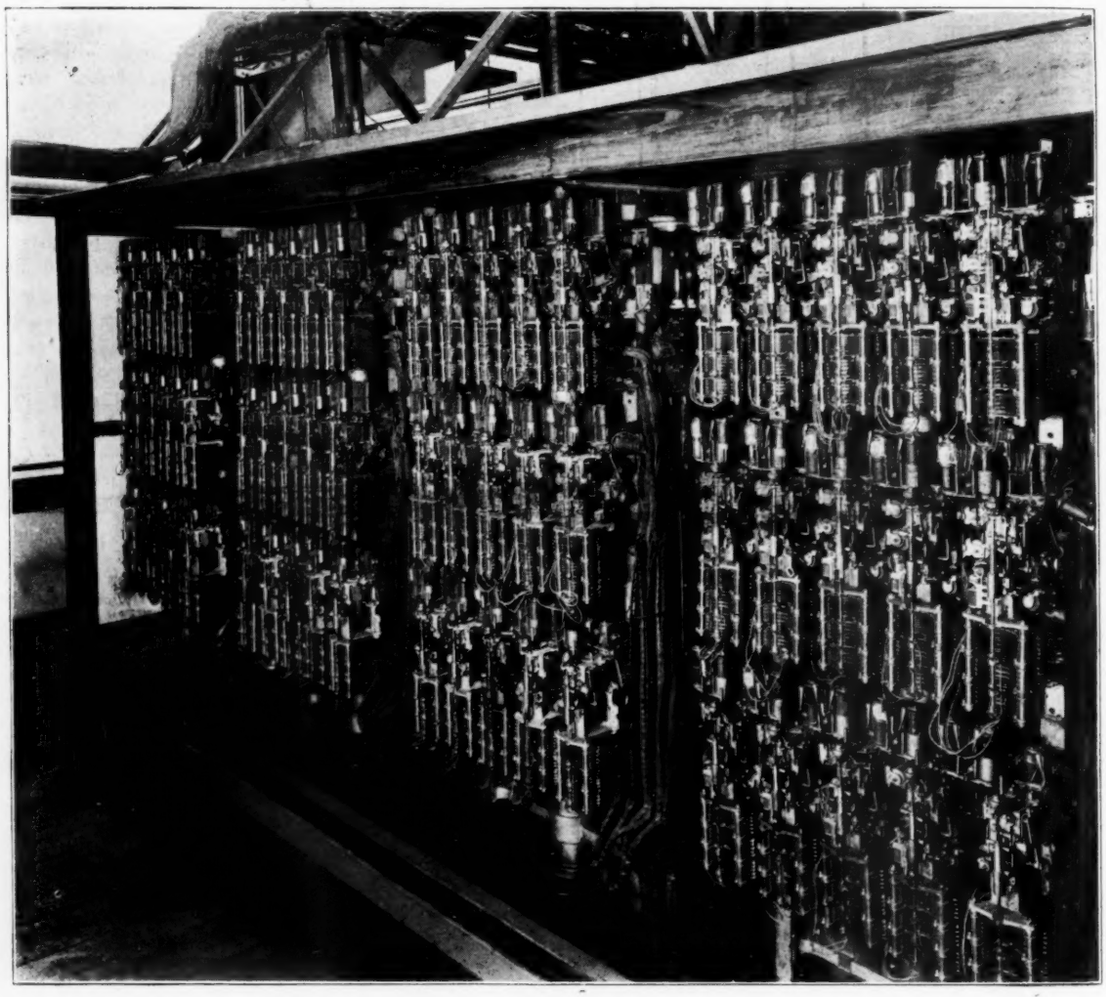
Pupin's important contribution to the subject of the inductive loading of cables consisted in the proof he gave that the added inductance could be inserted in the form of inductance or loading coils spaced at equal intervals in the line, provided these coil intervals were not more than about one-tenth of the mean wave-length of the speech electric-current waves on the so-loaded cable.

Aerial lines and cables began to be loaded in this fashion soon after 1900, with the result that the normal speech range was extended. It is possible to load with coils so as to increase the line inductance from 10 to 250 times that of the unloaded line.

Considerable research has, however, been necessary to find the best form of loading coil. Those first used consisted of a ring-shaped iron core formed of fine iron wire, overwound with two circuits of insulated copper wire for the lead and return circuits so wound as to produce a poleless circular magnetization in the core. In such a wire core the alternating telephonic currents dissipate energy as eddy current and hysteresis loss, and this is equivalent to an increase in the effective resistance of the coils.

The Core of the Coils.

The problem then was to find a method of making an iron ring in which eddy-current loss should be nearly absent and hysteresis loss small, but permeability sufficiently large to give the required inductance to the coil. The problem was solved by the Western Electric Co. after great



Fifteen years ago the Automatic Home Telephone Company of Pontiac, Ill., placed the equipment shown above in service. Today this same equipment is rendering a grade of service that is far ahead of that offered by the latest manual equipment — and it will continue to do so for many years to come.

rowger Equipment Grows Old But Never Obsolete

At no time has Strowger Automatic equipment installed in the past ever been rendered obsolete or valueless by later developments. Companies adopting this equipment fifteen to twenty years ago have been enabled to render commercial and dependable telephone service at all times, and at a very low cost.

How many switchboards of other types installed fifteen years ago are still giving a ***modern,*** dependable service ***now?***

When the time comes for the replacement of your central office equipment will you install the system that can be depended on to stay modern, or will you be content to continue to use equipment that will be out of date even before it is placed in service, besides being more costly to operate.

Our sales engineers are in a position to render you valuable service in making a decision in these matters. You will be placed under no obligation by writing us for facts.

Automatic Electric Company

FACTORY AND GENERAL OFFICES: CHICAGO, ILLINOIS
BRANCH OFFICES IN ALL PRINCIPAL CITIES
ASSOCIATED COMPANIES

INTERNATIONAL TELEPHONE SALES AND ENGINEERING CORPORATION, New York
rnational Automatic Telephone Company, Ltd., London — Compagnie Francaise pour l'Exploitation des Procédés Thomson-Houston, Paris
tomatic Telephone Mfg. Co., Ltd., Liverpool — Automatic Telephones, Australasia, Ltd., Sydney

research. These iron cores (called "dust cores") are now made as follows:

Electrolytically deposited iron is ground up into a powder and the iron grains are coated with zinc dust. The particles are then mixed with shellac as a cement and compressed under 100 tons per square inch into flat rings, which are piled one on the other to make the loading-coil core.

This material, when subjected to an alternating magnetic force of a frequency 100 to 2,500 p.p.s., has an average magnetic permeability of 34 to 50 when the magnetic flux density is only about 2 C.G.S. lines per cm.^{2} The electric conductivity is extremely small (about 1/80,000th part of that of solid iron) so that eddy-current loss is absent, and hysteresis loss is also very small.

The details of one type of loading coil with dust core are as follows: Inductance at 800 p.p.s. and 1 ma = 0.177 H. Effective resistance 9.2 ohms. The core composed of 7 dust rings has a cross-section of 8.3 cm.^{2} and 24.9 cm. mean length. Mean permeability at a magnetizing force of 0.0564 = 34. The total turns of wire on the ring are 1,120 put on in four separate sections on the four quadrants, and two such coils in series are inserted in the lead and return of the telephone circuit.

In the case of underground cables it is customary to space the loading coils about 2 to 2.5 miles apart and to give them such inductance as to add about 55 mh per mile run of the cable. The ratio R'/L for each coil is about 50. Lighter or heavier loading is, however, often employed.

For these loaded lines the attenuation constant, a, can easily be proved to be given by the expression $a = \frac{1}{2}[(R/L) + (S/C)]\sqrt{(CL)}$, where R and L denote the total effective resistance and inductance of the line per mile of loop, and S and C the leakance and capacity. It is seen, therefore, that the insulation resistance of the loading coil, as well as that of the line, must be very high if the effect of the added inductance is not to be nullified by the leakance.

In aerial telephone lines the loading coils are placed from 8 to 12 miles apart and have each an inductance of about 0.25 h or less, so as to give the line a total inductance of about 40 mh or so per mile of loop. The coils are put in iron boxes attached to the telegraph posts. In aerial lines one difficulty of securing the full advantage of loading is the ever-varying leakance of the line.*

The longest aerial loaded telephone line in the world is the New York-San Francisco-Los Angeles line of the American Telephone & Telegraph Co., which is 3,790 miles in length and was completed in 1916. It is loaded every eight miles with coils having an inductance of 0.25 h and 6.5 ohms effective resistance, giving the line an average inductance of 37 mh per loop mile. This reduces the attenuation constant to 0.00125. The electric wave, therefore, runs 800 miles before its amplitude is reduced to 36.7 per cent of its initial value, or by 1 napier.

Another long aerial loaded line is the Berlin-Rome line, 1,300 miles in length, in which loading coils are inserted every 10 km or 6¼ miles, each coil having an inductance of 0.2 h, thus raising the average inductance of the line to 22 mh per loop kilometer and reducing the attenuation to 0.0011 per kilometer of loop.

Submarine Cable Loading.

It was a more difficult problem to load with coils a submarine cable, but this was successfully accomplished by Siemens Bros. in the English Channel telephone cable laid by the British Post Office in 1910.

Inductance coils of special construction were designed for enclosure within the gutta-percha insulation and armoring of the cable, the coils having an inductance of 0.1 h at 750 p.p.s. and being placed at intervals of 1 naut (= 1.153 miles). The insertion of the coils required an increase in the diameter of the finished cable at intervals of 1 naut, but it was not too great to permit the cable being handled and laid in the relatively shallow water of the channel.

Similar coil-loaded cables were laid to Belgium in 1911 and under the Irish Channel in 1913 by the British Post Office.

The difficulties involved in the construction, laying, and especially in the raising and repairing of such coil-loaded submarine cables, would be far too great in the case of deep-sea cables to render them practical, and hence much attention has been directed to the alternative method of loading called uniform loading, which was first practically employed in 1902 by the Danish telephone engineer C. E. Krarup in a telephone cable laid between Elsinore and Helsingborg.

The method consists in overwinding or whipping the copper conductor with one or two layers of soft iron wire put on in close turns. This increases the inductance of the core and also to some extent its capacity and effective resistance.

It is not found practicable to increase the layers of iron wire so as to give an added inductance per mile equal to that which can be obtained by coil loading, without passing the point of minimum attenuation constant, owing to the simultaneous increase of the capacity and resistance. A certain compromise can be effected by somewhat increasing the diameter of the stranded copper core as compared with that which would be employed if the cable were to be coil-loaded instead of uniformly loaded.

In the case of uniformly loaded cables there is more difficulty in the predetermination of the resulting improvement in reduction of the attenuation constant by the loading, owing to the uncertainty which must exist as to the exact value to be ascribed to the magnetic permeability of the iron under the conditions in which it is used.

When employing coil loading, we can always make fairly exact measurements of the effective resistance and inductance of a sample loading coil, and if the cable is a double parallel-wire cable of known inductance, capacity and resistance per mile, we can then predict with very approximate accuracy the effect of loading at certain intervals the said cable with the measured type of coil.

In the uniformly loaded cable we have in the iron wire spiral an imperfectly complete iron path for the lines of magnetic flux. The magnetizing forces are weak, owing to the small value of the telephonic currents, and the frequency and force are constantly varying within wide limits. Nevertheless, experience has shown that if we ascribe to the iron a mean permeability of 110 or 115, the predicted inductance agrees fairly well with the measured values of that of the uniformly loaded cable.

In addition to several short telephone cables of this type laid in North Sea waters prior to 1904, an Anglo-French cable was laid across the English Channel in 1912 by the French government, the cable being made and laid by the Telegraph Construction & Maintenance Co. of London.

This cable is a four-core cable, each core consisting of copper conductors weighing 300 lbs. per naut. Each core is whipped with one layer of iron wire 0.012-inch in diameter, and four such whipped cores are made up into a double-circuit quad cable. The wire-to-wire capacity is 0.176 μF per naut of loop and at a frequency of 1,000 the attenuation is 0.018 per naut.

In the case of the coil-loaded 1910 cable the attenuation at 1,000 p.p.s. is 0.020 but the copper core of the last-named cable weighs only 160 lbs. per naut. Hence it is seen that by nearly doubling the section of copper core the iron wire single-layer whipping produces the same effect as the coil-loading as regards attenuation.

One of the latest examples of this type of uniformly loaded telephone cable is that laid in triplicate between Key West on the coast of Florida, U.S.A., and Havana, on the island of Cuba, a distance of 105 nautical miles (1 nautical mile = 6,087 feet).

Since the sea channel has a maximum depth of 1,000 fathoms in the Florida Straits, no type of cable except the standard deep-sea type with G.P. insulation was possible. Also it was decided that no type of coil-loaded cable was feasible. Neither was a multiple-circuit cable considered suitable. Hence the only practicable type

*Valuable information on this subject was given in 1914 by J. G. Hill, of the General Post Office, in a paper on "The Loading of Aerial Lines and the Constants of Loaded Circuits" (see Electrician, 1914, Vol. 62, p. 602) which was read before the Institute of Post Office Electrical Engineers.

was an armored, uniformly loaded cable with a single copper core.

In the case, however, of such a cable the return circuit is partly by sea and partly by the armor, and, as the distribution of the return current depends upon the frequency, this, in turn, affects the inductance. It was, therefore, decided to provide a definite return path by overwinding the insulated copper core with a triple spiral of thin copper tape. The cable was then armored over this in the usual way.

The final effect was to produce a concentric conductor with the central member whipped with fine iron wire 0.008-inch in diameter put on in 120 close turns per inch run. The copper core weighed 350 lbs. to the naut and had a resistance of 3.52 ohms at 75° F.

The measured inductance at 1,000 p.p.s. was 4.35 mh and the capacity 0.31 μF per nautical mile.

The attenuation and resistance per naut increase rapidly with the frequency, as shown in the accompanying table.

The table figures are taken from the paper by G. A. Anderegg and B. W. Kendall describing this cable, and presented at the midwinter convention of the American Institute of Electrical Engineers, New York, February, 1922.

Frequency, p.p.s.	Attenuation per naut.	Resistance in ohms per naut.	Transmission equivalent, in M.S.C.
200	0.0168	4.1	19.8
500	0.0194	4.5	19.4
1,000	0.0216	4.8	20.8
2,000	0.0278	5.8	27.2
3,000	0.0363	7.2	35.7
4,000	0.0460	8.7	46.0
5,000	0.0575	10.7	58.0
6,000	0.0725	13.7	72.7

Key West-Havana Submarine Uniformly Loaded Telephone Cable, 105 Nauts.

Three separate cables of this type were made and laid in contiguity in the Florida Straits in 1921. They were manufactured and laid by the Telegraph Construction & Maintenance Co. of London for the American Telephone & Telegraph Co.

We may then say that the problem of loading a deep-sea cable has been fairly well solved, and although we cannot nearly approach to the Heaviside condition for distortionless transmission, viz.: $LS = CR$, where L = inductance, S = conductance, C = capacity and R = resistance per naut, we can make a very useful approximation to it.

Thus in the case of the Key West-Havana cable we have the following actual measured values of the above quantities at 1,000 p.p.s.: $L = 4.35 \times 10^{-3}$ H

$S = 12.8 \times 10^{-6}$ mho

$C = 0.315 \times 10^{-6}$ F and

$R = 3.32$ ohms

Now $LS = 55.7 \times 10^{-9}$ and $CR = 1.04 \times 10^{-6}$, hence the inductance would have to be increased nearly 20-fold to about 80 mh per naut to fulfill the Heavside condition for distortionless transmission.

Nevertheless we can say that, starting with Heaviside's original suggestion, the successive improvements in loading due to Pupin and Krarup, as put into practice and improved by the careful research of great technical organizations and by the public or governmental telephone services, have resulted in an extension of the practical telephonic ranges up to, say, 2,000 or perhaps 3,000 miles by aerial lines, 500 miles on underground and 200 miles on submarine cables by suitable loading, as compared with about one-half or one-third of the distances for unloaded lines of the same type and size.

(To be continued)

Radio Telephone Link to Catalina Island Replaced by Cable.

The American Telephone & Telegraph Co. announced July 31 that the only commercial radio telephone link in the world, which for the past three years has been handling telephone business between Catalina Island, 30 miles off the coast of California, and the wire lines of the Bell system, has been replaced by a submarine cable.

The license of the radio "talk bridge" expired August 1 and the Department of Commerce requested that its operation be discontinued, making the wave lengths available for broadcasting.

The change from radio to cable in a case like Catalina Island, where the cable is not only feasible, but more economical than radio, is regarded as for the good of the service.

Laying of the cable was begun on May 17, and on June 15, it was put in service. Two sections of cable have been laid which run practically parallel to each other and in general lie about two miles apart. Each section is approximately 23.6 miles (nautical) long.

This new cable, while not of the same size or proportions as the Havana (Key West) cable, resembles it in that it contains a sheath of copper taps, concentric with the central conductor, which is used for a return path. Transmission through the cable is approximately equivalent to 10 miles of standard cable and a repeater has been installed at the mainland end of each section. No repeaters are needed on the Catalina Island end as long distance circuits will be connected there.

The two cables include sections of four different types, each designed for a certain range of depths of water. Each type, therefore, differs in size of armor wire, jute coverings, and other protecting sheaths, but does not differ in size of copper conductors. The shore ends are the more heavily armored and give the increased protection necessary in shallow water.

In splicing two sections of cable together, the practice was to carefully solder the central conductor, then apply the insulating compound which forms a covering for the core. Around the insulation the copper tape, supplying the return path, is wound, and the free ends of tape from the two sections of the splice are fused together by an oxy-acetylene flame. Surrounding the layer of copper tape is a layer of jute, and around the jute lies the armor wires.

At a splice, the armor wires of the two sections are overlapped for a distance of about four feet, and are welded at many points by an electric arc. Outside of the armor wires an additional layer of jute is wound.

Each cable, of course, forms a complete telephone circuit, so that the two cables double the telephone facilities which were formerly supplied by radio. In addition to a telephone circuit, each cable is composited to provide a duplex telegraph channel. It has been possible to place the cables in operation without complete tests of their characteristics, and these tests will follow as occasion permits.

Automatic of New Bedford, Mass., to Be Sold to Bell.

Sale of all of the property, rights and privileges of the New Bedford Automatic Telephone Co., New Bedford, Mass., except its real estate and franchise, to the New England Telephone & Telegraph Co. was authorized at a special meeting of the stockholders of the company on July 31, by a vote of more than two-thirds of the outstanding stock.

The proposed sale is for the consideration of $95,000, which is a proposition yet to be considered by the Bell company. The negotiations so far conducted, it is stated, make definite the sale of the property of the Automatic company and the retirement from the telephone field of this company.

The vote of the stockholders was taken on the recommendation of a committee of the directors appointed June 25, 1923, for the purpose of entering into negotiations looking toward a disposal by sale of the assets of the company. This committee, obtained the $95,000 offer from the New England company and accepted, subject to the approval of the directors and stockholders. The directors accepted the recommendation at a meeting held July 16, and the vote of the stockholders July 31 is the final authorization of the sale of the assets of the company.

While the New Bedford Automatic Telephone Co. received its franchise in 1899, it was not until the latter part of 1900 that the company began the operation of its telephone system here. In its heyday the company had 3,000 installations in New Bedford. Since then there has been a falling off in the number of installations until there are now between 1,200 and 1,400 stations, which include about 700 stations where the subscribers have both the Bell and Automatic company installations.

Golden Eggs—Who Feeds the Goose?

Discussion of Profits Made by Insurance Companies at the Expense of the Insuring Public—Suggested That Investment Earnings be Used to Reduce Rates—Operation of the Reciprocal Insurance Plan and Results Attained

By Lynton T. Block
President, Lynton T. Block & Co.

Ben C. Hyde, superintendent of insurance of the state of Missouri, in a leaflet entitled, "A Reasonable Service for a Reasonable Profit," calls attention to a situation wherein insurance companies have made enormous profits during the past few years, and he reminds us that these enormous profits, ranging as much as 516 per cent on the capital, are derived from the investment of assets which were largely collected from the public and do not include any of the underwriting profits whatsoever.

It is the insuring public which pays the premiums out of which losses and expenses are borne and if, after defraying the losses and expenses, large surplus and reserve funds are accumulated sufficient to earn by investment thereof these enormous returns, it is prima facie evidence that the premiums were excessive. Clearly then it is the insuring public which feeds "the goose that lays the golden eggs."

That insurance companies must collect sufficient premiums to be safe in their calculations is an undeniable necessity. The speculative element in the insurance business demands that premiums be loaded sufficiently with a factor of safety to cover the maximum anticipated loss cost. The insuring public, consequently, pays high premium rates in order to cover possible adverse loss experience, but when in the run-off or liquidation of losses, enormous profits are shown, the insuring public has no redress—it has fed the goose to the tune of millions of dollars, but the "hen fruit" belongs to the goose's owner. The goose feeds in the policyholder's yard, but lays golden eggs on the other side of the fence.

Any system of insurance which makes a condition of this kind possible is open to criticism, but what is the answer? No one will say that merely because certain companies have made large profits, they are to be condemned, and no one can reasonably question the right of these companies to invest their assets and earn for themselves the maximum possible return. But while granting all that, we come back continually to the outstanding fact that the insuring public pays premiums which are so far in excess of the needs of the companies that these tremendous surplus funds are accumulated.

As a remedy, it has been suggested that the rates charged by the companies with large investment earnings be reduced to such a point that a part of the investment earnings will be required to pay losses and the net profits of the companies be thus brought down; but experience has shown that, as a practical thing, insurance rates should not be made competitive.

The necessity for uniform rates has been repeatedly demonstrated and if the rates applicable to all companies were reduced sufficiently so that those companies having large invested surpluses would reap but a fair and reasonable return on their capital from both underwriting and investments, other companies with less surplus—and, in consequence, less investment earnings—would be forced out of business, which in itself would soon create a monopoly. Obviously, such a procedure would be no remedy at all, but a serious economic calamity.

There is one remedy, however, and only one: that remedy lies in "Reciprocal Insurance."

If these stock companies were operated on the reciprocal plan, their invested capital would be theirs to yield them a fair and adequate return, but their large accumulations of reserves and surplus from excessive premiums would stand as a credit individually to those policyholders who in the first instance, had paid the unnecessarily large premiums and the earnings of these funds would revert back to those policyholders. No insurance department official and no policyholder would then need to be concerned with the question of underwriting profits or investment profits because such profits would revert automatically to those who had contributed the means of making them.

If such an insurance company, skillfully conducted on the reciprocal plan, were to select its risks so as to produce a low loss ratio, the policyholders who comprised those risks and thus afforded the low loss ratio would themselves be the gainers. Such a company would attract to itself other desirable risks and they, in turn, would participate in the results of their own efforts at loss prevention and would reap the benefits in reduced insurance cost.

That is what does happen in the operation of reciprocal insurance exchanges, and that is what would happen if stock insurance companies were conducted on the reciprocal plan—but they are not. They own the goose which feeds in the neighbor's yard, and they want to keep all the eggs. It has remained for the reciprocal insurance exchanges to point the way to the only solution of the problem.

There is no answer to the question of excessive profits by insurance companies except on the reciprocal plan. The mutual plan approaches it, but in a mutual company the policyholder who pays premiums, which have within them an element of underwriting profit, has no individual ownership of, or title to, the accumulated surplus arising out of his own premium, nor does he necessarily reap the benefit of the subsequent earnings thereon. Only on the reciprocal plan is this result accomplished.

Only in a reciprocal insurance exchange does he who feeds the goose get his exact share of the golden eggs. That is the fundamental idea behind reciprocal insurance. It is the reason why reciprocal insurance has made such tremendous progress and it is the reason why the insurance profiteers are opposed to reciprocal insurance. They own the goose and strive to keep all the golden eggs, although the goose is nourished and fed out of the pockets of the insuring public.

This article on systems of insurance is both interesting and instructive, being written by one of the best known insurance authorities in the country. Mr. Block, of the Utilities Indemnity Exchange, has had more than 20 years' experience in insurance theory and practice, and after having tried out first the old-line stock company plan and later the reciprocal plan for the last 12 years, his well-stated argument that the reciprocal plan solves the question of insurance cost is worth careful reading.

Another Chicago Machine-Switching Exchange in Service.

At midnight, Saturday night, August 4, the new State telephone exchange of the Illinois Bell Telephone Co. in Chicago was cut into service. This is the second machine-switching or dial unit to be placed in service in Chicago. The first was Central, which was cut over June 9.

The State cut-over involves about 8,000 telephones having this prefix, all of them in the downtown district. The switching apparatus is located in the company's Franklin building, 311 W. Washington St.

Public Good Will Wins Better Rates

Order of Oklahoma Commission in Heavener Case Pays the Company High Compliment—Plan to Improve Service with Feature Equipment Praised by Regulatory Body—Business Men and City Officers Favor Rate Advances

A fine compliment to the excellent public relations created by a well-managed Independent telephone exchange was paid by the Oklahoma Corporation Commission in the rate order recently handed down in the case of the Oklahoma-Arkansas Telephone Co.

Commission orders usually stick to formal, legal phraseology, but in this instance the state regulatory body was apparently so impressed by the efficient, economical management of the company that it took occasion to highly commend the telephone company.

The order, which was written by H. W. Hubenthal, telephone engineer for the commission, also describes the new equipment to be installed at the Heavener exchange, and says that this type of apparatus has been in operation at other exchanges and given excellent service. The service switchboard referred to is the product of the Kellogg Switchboard & Supply Co.

According to the Oklahoma order, observation and comparative studies show that the exchange at Poteau, which is equipped with this Kellogg apparatus, renders superior service and at a lower cost of operation and upkeep.

The official order issued by the commission emphasizes strongly the advantages of a telephone company building up the good will of the community which it serves, and is, therefore, given in full:

"The Oklahoma-Arkansas Telephone Co., operating telephone exchanges in the eastern part of Oklahoma, filed its application for authority to revise its rates for telephone service in the town of Heavener, Okla.

This cause came on for hearing July 7, 1923, at Heavener, after due notice to all interested parties. Numerous business men, citizens of Heavener, and subscribers to the telephone company, were in attendance. The city was represented by Mayor Folson, and the Heavener Lions Club by President H. J. Moorehead. No one opposed the application.

The petition states that the Oklahoma-Arkansas Telephone Co. purchased the telephone plant at Heavener about May 1, 1920; that its present physical condition necessitates a rebuilding program to the extent of virtually replacing the entire plant, to enable the company to render adequate service and to accommodate new business.

It also states that replacements will provide a common battery service switchboard for all subscribers' lines in cables and to be made metallic, all old poles to be replaced with new ones and, wherever possible, for pole leads to be changed from streets to alleys.

The petition also represents that the proposed switchboard will embody various feature circuits constituting the very latest improvements which the art of telephony affords at this time for the rendering of manual service, including instantaneous disconnect and instantaneous recall signals; that accomplishments attained thereby are fundamental to high grade service, and if applied to central office practices will be of great benefit to the telephone-using public; that total expenditures and investment in plant and equipment when completed will amount to approximately $40,000; that rates now in force are grossly inadequate; and that petitioner cannot pay operating expenditures, maintain its service, and operate under said rates.

The company also requests that it be permitted, after completion of its new plant, to make the following charges for telephone service:

For individual business lines, $3.50 per month; for business extension telephones, $1 per month; for individual residence telephones, $2 per month; for residence extension telephones, 75 cents per month, and for switching rural telephones, 50 cents per month.

It alleges that these rates are the minimum at which the petitioner believes it can pay the expenses of operation, maintain its system so as to render adequate service, and enable it to earn a reasonable return on its investment.

It is further stated that the proposed schedule of rates had been submitted to the Lions Club and to the city council of the city of Heavener, been considered in open meeting, and that the approval of these bodies had been secured for the establishing of the said rates.

The petition was accompanied by a resolution from the Lions Club and the city council of Heavener, recommending favorable consideration of the company's application.

The commission appreciates the spirit of fairness on the part of the citizenship of Heavener toward the telephone company, manifested by its declaration in support of the company's petition. It shows the relation of the company and its patrons to be very cordial. This is very important. It indicates that in addition to furnishing adequate service, which every subscriber has a right to expect, the company is considerate and courteous in its treatment of the public.

The patrons apparently have an abundance of faith that the company will make good its promises, which seems proven by performance of the past. The management of the company should be commended for its good work and its enterprising spirit to do justice to its patrons in its endeavors to secure for them the very best telephone service possible. The company can justly be proud of the compliment paid by its patrons.

The commission can much more reasonably entertain an application of this kind and make reward for efficient and economical management when, regardless of inadequate return, the company delivers the goods.

The commission finds the central office equipment, which is to be installed at Heavener, to be of the same type but a later model of the equipment now in use by this company at Poteau, Okla.

The commission also finds from an inspection and investigation of its engineering department that the Poteau telephone plant is one of the most modern and up-to-date for its size anywhere; that the service is excellent; that observation and comparative studies of methods employed in other plants of similar size operating on a common battery basis disclose the Poteau equipment to render superior service and to be lower in cost of operation and upkeep.

The commission finds that while there are a few common battery service switchboards in Oklahoma, in other states many Independent companies are using this type

COURTESY.

Courtesy is the one medium of exchange that is always accepted at par by the people of every country on the globe.

Courtesy radiates a spirit of good feeling and suggests that we are not working entirely for the material returns of work, but for the pleasure of friendly, human association, as well.

Life is not too short, and we are never too busy to be courteous.

Courtesy is the outward expression of an inward consideration for others, and is always an effective lubricant that smoothes business and social relationships, eliminating friction.—The Outlook.

of equipment for new installations and for replacements, others are rehabilitating their present equipment, including the installation of devices which will afford all of the advantages service boards have to offer, thereby enabling these companies to give better service on a more economical basis; that state commissions have approved this type of equipment, and that the Michigan Public Utilities Commission, in the disposition of the application of the Michigan State Telephone Co., a constituent part of the Bell company, commenting on apparatus employed in the operation of telephone switchboards affording instantaneous disconnect and recall features, in order T-252, said:

The result aimed at by such devices is quicker, more accurate and satisfactory service. It is generally conceded by all telephone managers outside the American Telephone & Telegraph Co. group, that these devices improve telephone service and should be accepted where manual methods of switching are continued in use.

The Michigan commission also directed the Bell company to rehabilitate its exchanges and to install devices for instaneous disconnection and recall.

The commission further finds that for the successful operation of a central energy system, all lines should be made metallic; that this will necessitate the rebuilding of the entire outside plant at Heavener; and that, considering the higher cost of the central office equipment necessary to supply the character of service desired, the expenditure for the conversion of the plant to a central energy system will be much greater than in the case of a magneto or an ordinary common battery plant.

The commission at this time is not in a position to definitely determine what the company's investment will be, after the plant has been rebuilt, but the company will be required to separately account for new facilities installed and plant retired, and make a report to the commission as early as possible after completion of the new plant. It is so ordered.

The commission has reviewed the evidence presented by the petitioner at the hearing, examined the company's annual report for the year 1922, together with supplementary financial statements for the company's plant at Heavener, and from a study and an analysis of its operating activities, revenues, expenditures, and net income, finds that revenues have not kept pace with expenditures and that the company is entitled to an increase in its rates.

Wherefore, the commission being advised and having given due consideration to all representations, it is therefore ordered that the Oklahoma-Arkansas Telephone Co. shall proceed with the installation of the new plant and conditional upon its installation, after completion, and upon the successful operation of a central energy telephone plant in its entirety as hereinbefore outlined, described, and specified, at Heavener, the Oklahoma-Arkansas Telephone Co. shall be permitted to put in effect and collect the following monthly rates for telephone service in Heavener:

Individual business	$3.25
Business extension	1.00
Individual residence	2.00
Residence, extension	.75
Switching, rural	.33⅓

It is further ordered that this order shall operate subject to change at any time by the commission, upon showing by any one interested that the rates established herein produce greater revenue than necessary to pay operating expenditures, taxes, and a reasonable rate of return on the investment in plant and property devoted to the public service."

The above-quoted order should convince all telephone companies—and, in fact, all utilities—that it pays to win the support of the service users. It shows that living rates follow honest effort to give good service.

Telephone Installed in the Night for President Coolidge.

Before taking the oath as president and after receiving news of President Harding's death at ten minutes before midnight, August 2, President Coolidge had talked with Washington several times on the telephone in the general store across the road, formerly run by his father and now kept by Miss Florence V. Cilley.

This telephone is on the line of the Southern Vermont Telephone Co., a so-called "farmers' line," which connects at Bridgewater, Vt., with the lines of the New England Telephone & Telegraph Co. Long distance conversation is frequently impracticable over this branch line. The President and his assistants had difficulty in hearing, and the messages from Washington and the replies were relayed by the night operator at White River Junction.

At three o'clock in the morning of August 3, a crew of linemen of the New England Telephone & Telegraph Co. appeared, in charge of District Superintendent W. T. Durfee and E. S. Blakely of Rutland and Charles Sawyer of White River Junction. In half an hour the linemen had connected with the telephone trunk line running from White River Junction to Bellows Falls and had installed a telephone instrument in the dining room of the Coolidge home, where no telephone had been before.

A circuit was then established to give direct connection between Washington and the Coolidge farmhouse, which became for a few hours the nation's capital. This completely tied up one of the three telephone circuits running from the neighborhood of Plymouth, Vt., to New York and Boston, and increased the difficulty of transmitting information to the newspapers and press associations.

An hour later, however, the linemen had set up three telegraph circuits in the Cilley general store and had installed another telephone instrument for the use of reporters on a tree just outside.

The three telegraph lines, where formerly the nearest had been one telegraph wire out of Ludlow, were immediately taken possession of by three news associations and used by them to flash the news of the President's departure for Washington.

Working for Better Telephone Service in Louisville, Ky.

Eight hundred telephones on the Parkway exchange of the Louisville (Ky.) Home Telephone Co. went dead in late July due to the flooding of the conduits by the heavy rains in the city. It was thought that a defective lead sheath or a tear in it as the cable was drawn into the conduit may have caused the damage, the exact location of which was determined by a wireless "fault-finder."

The trouble was remedied within 24 hours after the telephones were put out of service, it being necessary, however, to put extra men on the job. Six cable experts were kept busy most of that time making the necessary 3,600 splices at the two points on each side of the seat of the trouble.

Telephone lines serving 300 Home subscribers were transferred shortly after midnight Saturday, July 28, from the City exchange, Louisville, to the new Magnolia exchange. Within the past 30 days lines serving 900 patrons were transferred from the Parkway exchange to the Magnolia exchange, the Parkway exchange having been recently closed. Lines serving 600 subscribers were transferred from the Crescent exchange to the Highland exchange, the Crescent exchange being closed. August 4 about 1,300 lines were transferred from the City to the Magnolia exchange.

Completion of the new Magnolia exchange, with the necessary transfers and getting out of new directories, involves an expenditure of something like half a million dollars. These changes are being made by the Louisville Home Telephone Co. in the hope of making service to the subscribers more satisfactory. When all the contemplated changes are made and the new equipment installed, it is estimated that 50,000 can be served.

American Telephone Now Has International Market.

American Telephone & Telegraph Co. stock is to have an international market, for under a special ruling $4,057,500 of the capital stock of the company has been admitted to trading on the London Stock Exchange.

This is the first American public utility issue to gain the distinction of virtually a world-wide market.

Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

Arguments as to Operating Costs Comparison in Nebraska Case.

Although attorneys for the Northwestern Bell Telephone Co. argued for a day against the admissibility as evidence of showings that the Lincoln Telephone & Telegraph Co. gives as good service at lower rates because its unit costs are lower, Master in Chancery Dunham of the federal court allowed it to be made a part of the record in the Bell injunction case against the Nebraska State Railway Commission.

O. E. Johnson, expert accountant for the commission, submitted a number of these showings, the effort being to show that if the Bell operated on the same expense basis as the Lincoln it would save a million dollars a year in operating costs.

Mr. Morsman, for the company, said that the two companies' experiences are not at all comparable; that, as a matter of fact, no two telephone companies could be fairly compared because of the varying conditions and the absence of the necessary elements for a comparison. The two companies under discussion, he said, were dissimilar in every respect, and they had no points in common. He insisted that the Lincoln company's service is not as good as the Bell service, and argued as one proof of this that patrons were willing to pay more for Bell service.

Mr. Morsman said it was absurd and unfair to compare the two companies. The Lincoln operates in a compact territory, covering the southeastern part of Nebraska, whereas the Bell properties are scattered all over the state. Either the Chadron or the Grand Island district of the Bell is as large as the whole territory of the Lincoln. It would necessarily follow that supervision costs are higher since a greater amount of traveling must be done. He said that the Omaha exchange, with its numerous offices, could not be compared at all with Lincoln exchange, where there are but three offices.

Another point made by Mr. Morsman was that the preponderance of toll is a tremendous factor in Bell costs, and that the Lincoln company had no such proportion of toll to exchange revenue. All this adds to the cost of operation.

U. G. Powell, former rate expert for the commission, presented a setup covering 30 or 40 pages, which was intended to convey to the master and the court what financial advantages would redound to the Bell if it were not extravagantly and uneconomically managed, if it paid the American Telephone & Telegraph Co. only for the instruments it gets from it, and if certain readjustments were made as to depreciation that represent the commission's idea of what it should be.

Mr. Powell's figures showed that if the Bell were run on the same operating unit basis of cost as the Lincoln company, if it charged only to depreciation what is necessary to replace property as it wears out and at the same time maintain service conditions, and if the speculative benefits attaching to the relationship with the parent Bell company for which it pays under the 4½ per cent contract were eliminated, the company would be earning 9.03 per cent on the actual value of its property as agreed upon as fair and reasonable

Master Dunham has finally held with the Bell on one point that was bitterly fought over. He holds that the company cannot be required to credit its net income account with the income from securities and other property in which the depreciation account is invested. The company's position was that the account belongs to the stockholders and that the income from any investment of it is theirs without any neccesity of accounting for it.

The master holds that to admit this in testimony would be to violate, or at least amend, the stipulation entered into at the beginning of the lawsuit between the two parties as to what the value of the physical plant in use was of a certain date.

Cut Expected to Be Ordered in Chicago Telephone Rates.

The Illinois Commerce Commission's hearing on the Chicago telephone rates of the Illinois Bell Telephone Co. ended July 31, and the commission adjourned until September 1. It was indicated that a reduction will be made in telephone rates within the city.

The commission may issue its decision when it reconvenes in September, or it may issue it during its recess. Hearings have been held at intervals for 23 months, and it is believed that the commission's mind is made up as to its decision.

The adjournment came after Stephen A. Foster, special attorney for the city, had declared that the valuation of the company's Chicago property should be less than $80,000,000, instead of $160,000,000 as the company asserted; and that even at an excessive valuation of $80,000,000 the company's annual income could be reduced nearly $3,900,000 on a basis of a 7 per cent return.

After Mr. Foster's closing address, Chairman Frank L. Smith invited representatives of both sides to come into his office, sit down at a table and informally arrive at a schedule that would be fair to the company, to the public and to the company's investors. W. D. Bangs, attorney for the company, declined the invitation.

P. B. Warren of Springfield, attorney for the company, was the first witness at the closing session. Mr. Warren presented extensive lists of figures purporting to show that the value of the company's properties in Chicago on December 31 last was $160,490,233. A normal return on invested capital, he said, would be impossible if the rates were reduced.

Among the valuation items, Mr. Warren said, was $20,000,000 for the company's going value, or good will. The original cost of the properties, he added, was considerably less than $160,490,233, but that figure was a fair estimate of the cost of reproducing the property.

"The present return is only 3.94 per cent on a fair valuation of the property," he said.

Attorney Bangs then analyzed the company's financial situation. He told the commission that the rates cannot legally be changed unless they are proved unreasonable, and that the burden of proof devolves upon the city.

"A rate which is confiscatory cannot be reasonable," said Mr. Bangs. "The commission in determining what is a reasonable rate must also take into consideration the service given the consumer."

Attorney Foster, in reply, introduced statistics to show that the company's valuation should be set at less than $80,000,000.

"Even assuming that the commission should find a valuation of the entire property used and usable (including all intangibles) was $80,000,000, which valuation we think would be excessive, a return of 7 per cent would require a net income of only $5,600,000," he said.

"The record shows that the income of the company in 1922, as corrected, was $3,893,870.76 in excess of such return. Reductions in the rates to take up this excess of income over a fair return should be made by the commission and should be apportioned among the different classes of telephone users, giving especial consideration to residential telephones."

The company's total operating revenue for 1922, according to its figures, was $35,535,527.72, including a deduction of $2,151,467.06, which was paid to the American Telephone & Telegraph Co. on the 4½ per cent contract.

"Instead of paying that amount, the company should pay the A. T. & T. $554,-

209 on the basis of 90 cents a station," Attorney Foster asserted. "That means the company is paying $1,597,258.06 excessively. Adding this to the company's operating revenue, we have a corrected operating revenue of $37,132,785.78.

"The company's total operating costs are $27,638,915.02. Deducting this from the corrected total operating revenue, we have $9,493,870.76, which is the net operating revenue.

"A fair return of 7 per cent on the $80,000,000 valuation would be $5,600,000. The difference between that sum and the corrected net operating revenue is $3,893,870.76, which is the excess profit which should have been saved to the subscribers in 1922. The 1922 figures form a fair basis for calculating the 1923 figures."

Order in Indiana Bell State-wide Case Expected Soon.

An order in the Indiana Bell Telephone Co. consolidated rate case is expected to be forthcoming from the Indiana Public Service Commission at an early date.

Announcement of the order is being awaited eagerly in more than 100 cities and towns, in addition to Indianapolis, where the company operates. Around the state house and among utility men there has been some talk of a possibility of an increase in rates. Some, however, think the rates will remain as they are.

The telephone order has been prepared by Commissioner VanAuken, it is understood, but has not been presented to the commission for discussion and ratification. It is believed that the order will be issued next week.

An increase, if it is ordered, will be defended by the commission, it is said by persons who have followed the case, on the ground that if a comparatively small increase is not authorized, the company would take the case to the federal court and might obtain a much larger increase. The telephone company had begun rate increase proceedings in the federal court prior to the commission's investigation of all the company's rate increase petitions over the state.

The telephone company's consolidated rate case was opened before the commission in November, last year. Hearings were held up to the early part of January, when adjournment was taken until February. Following a few days of public hearing, the case was adjourned to the middle of April. The last hearing was held May 25.

In the event of a reduction, or even an order to continue present tariffs, it is understood the Bell interests will press the case into the federal court, asking for an injunction against enforcement of the order on the basis of property confiscation.

Previous orders of the commission affecting the Citizens' Gas Co., of Indianapolis, and the Home Telephone & Telegraph Co. of Ft. Wayne, have been carried to the federal court and injunctions against the enforcement of orders have been granted.

The Bell's original petition for an increase, filed more than a year, was denied by the commission and the case went to the federal court. By agreement the matter was left to a revaluation of the Bell property by the commission. From figures derived from this revaluation the coming order on rates is to be drafted.

Investigation of the Indiana Bell case was one of the most important, and by far the longest, ever held by the commission. Several months were spent in the examination of witnesses, both for the commission and for the Bell. Experts on every phase of telephone operation, some professional witnesses, were consulted.

Southwestern Bell to Issue $50,000,000 in Bonds.

Application for permission to issue $50,000,000 mortgage bonds was made August 7 to the Missouri Public Service Commission by the Southwestern Bell Telephone Co.

This issue of bonds will be used, President E. D. Nims stated, to retire advances of $17,974,761 made by the American Telegraph & Telephone Co. and to finance the steady demand for service in the five states in which the company operates.

The proposed bonds are to mature in 30 years and bear interest at the rate of 5 per cent. The Southwestern company operates in Missouri, Oklahoma, Kansas, Texas, Arkansas and parts of Illinois.

Two Missouri Exchanges Will Operate as One Company.

The transfer of the Osceola Telephone Exchange, of Osceola, by J. E. Passwater to C. F. Mumma received the approval of the Missouri Public Service Commission on July 24.

Mr. Mumma is also the owner of the Lowry City exchange, and the two exchanges will hereafter be known as the St. Clair County Telephone Co.

Asks Authority for Preferred Stock Issue to Interest Local Capital.

The Platte Valley Telephone Co., by Exben D. Warner, its head, has asked the Nebraska State Railway Commission to grant permission to sell $50,000 worth of preferred stock. Mr. Warner is anxious to get local capital interested, and for this reason is asking that the needed securities be issued in the form of preferred stock, which shall come first in dividends as well as in property rights.

The company is incorporated for $500,000, of which $400,000 is common and $100,000 preferred. Of the common $250,000 has been issued, but none of the preferred has hitherto been offered. The company has secured outside capital largely through bond sales, having $165,000 now outstanding.

In the application it is stated that the company has considerable extension work ahead in western Nebraska and eastern Wyoming, and that it also desires to clean up a part of its $50,547 bills payable and $27,552 of other payables.

The report of the company for the first five months of the year is submitted in support of the application. Exchange revenues have slightly increased, but toll revenues are off about $1,000. Exchange revenues for the five months were $38,741 and toll $14,289, a total of $53,050. Operating expenses were $23,152, maintenance $9,650, depreciation $6,483 and taxes $1,425, a total of $40,710. To the net of $12,320 is to be added $2,342 of other revenues, making a total net of $14,662. Deducting $6,267 for interest, the company earned almost exactly its 8 per cent common stock dividend.

The Platte Valley company has assets of $622,230 and an average capital obligation of $451,491. It operates 3,140 stations and switches 435 more, a total of 5,575.

Asheville (N. C.) Approves Merger of Companies.

The board of city commissioners of Asheville, N. C., on July 21 unanimously adopted a resolution granting the Asheville Telephone & Telegraph Co. permission to merge with the Southern Bell Telephone & Telegraph Co.

The resolution becomes effective when the Southern Bell company files with the city clerk its written acceptance of the resolution and all provisions of the ordinance of October 23, 1903, under which the Asheville company operated.

Agree That Only 4 Per Cent Return Is Had on Investment.

Representatives of the engineering and accounting departments of the North Dakota Railroad Commission and representatives of the Northwestern Bell Telephone Co. and North Dakota Independent Telephone Co., operating the principal exchanges in North Dakota, have agreed before the commission that the telephone companies are making an annual return of approximately 4 per cent on their invested capital of over $5,000,000, half of the return allowed.

Cited to Show Cause for Not Arranging for Long Distance Service.

The New York Public Service Commission on August 2 directed the Ouleout Valley Telephone Co., serving Franklin and vicinity in Delaware County, to show cause before the commission at Albany on August 8 "why it should not forthwith make arrangements whereby long distance service may be available to its subscribers."

Long distance service to the Ouleout company is by connection with the Otsego & Delaware Telephone Co. The latter cut off long distance service with the Oule-

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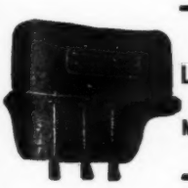
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out company because it failed to pay toll charges due the Otsego & Delaware company. This deprives a thickly-settled rural community of any long distance telephoning.

The Otsego & Delaware company, it is stated, is anxious to render service to the Ouleout company, but it declines to continue taking chances of failing to collect the toll amounts due it. The Otsego & Delaware company recently built a circuit from Otsego to Franklin to give the Ouleout company service at its exchange.

Demurrer is Filed in Ohio Telephone Rate Case.

The Ohio Bell Telephone Co. has filed a demurrer in common pleas court to the petition of George H. Phelps, local attorney, who is opposing higher rates for unified service in Findlay.

The demurrer says that common pleas court has no jurisdiction in the case, because the Ohio Public Utilities Commission has already approved the higher charges.

Claims Invasion of Territory in Two Communities.

The Pennsylvania Public Service Commission on July 23 heard arguments in the complaint of the Perry County Telephone & Telegraph Co. against the Cumberland Valley Telephone Co. and the Shermansdale Rural Telephone Co.

It was alleged that the Cumberland Valley company is urging a combination of persons to form a telephone company for the purpose of erecting facilities between Grier's Point and Shermansdale and that the Shermansdale company is constructing a line from Grier's Point to Pisgah Valley. The complainant contends that it supplies service in both communities.

Approves New Rates for Unified Service in Massillon, Ohio.

New rates to be charged by the Ohio Bell Telephone Co. for unified service in the Massillon district were approved July 27 by the Ohio Public Utilities Commission. Massillon was given its first automatic service recently, a preliminary step toward unification.

The rates approved by the commission are as follows:

Business, one-party	$7.50
Business, two-party	6.00
Residence, one-party	3.25
Residence, two-party	2.75
Residence, four-party	2.25
Rural business	3.25
Rural residence	2.25

The Bell system in Massillon was changed after the two years required for installation of automatic switching apparatus in a building equipped for the purpose. When the cut-over was made, 4,084 telephones were connected with the new exchange.

The "STEWART" Test Cabinet
Tells you if your line is short, crosses, or grounded and how many miles it is from you. So simple the operator can use it as easily as the men. Reads direct.
Sent on trial
STEWART BROTHERS
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Systems of accounts installed to meet the requirements of Federal and State regulatory bodies, annual audits, financial reports, income tax matters, rate case material prepared, filed and presented.
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Manual equipment removed to make room for the machine operated plant would be scrapped, it was announced at the time the change was made, while operators formerly used on city calls have been changed over to the long distance lines at the Bell office.

Two Companies in District, Patron's Choice Approved.

Objections of the Casco Brussels Telephone Co. having been withdrawn, and it appearing that the Luxemburg Telephone Co. is also serving the district involved, the Wisconsin Railroad Commission on July 30 gave the latter company permission to extend its lines in the town of Red River to serve Eli Johnson, who resides near the county highway.

The Casco company claimed at first that the extension would be an invasion of territory served in part by it, but it appeared that the Luxemburg company was also operating in the municipality and that the proposed extension would not constitute a duplication of equipment.

Mr. Johnson stated that he preferred telephone connection with the Luxemburg company, and it was accordingly allowed.

Stock Issue Allowed to Pay for Telephone Equipment.

The Wisconsin Railroad Commission, on July 18, authorized the Marathon City Telephone Co., of Marathon City, to issue $224 of its capital stock for the purpose of securing funds with which to pay the Edgar Cassel & Emmet Telephone Co. for certain telephone equipment acquired from that company, and also to pay for other telephone equipment, and all for purposes properly chargeable to capital account.

Permits Stock Issue to Acquire Other Property.

On July 18, the Wisconsin Railroad Commission authorized the Murry Farmers Telephone Co., of Bruce, to issue $2,000 of its capital stock in exchange for the telephone property of the Weyerhauser & Island Lake Telephone Co. The commission found that the value of the property to be acquired was at least the sum of $2,000.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

July 23: Chesapeake & Potomac Telephone Co. of West Virginia granted authority to acquire certain properties of the Trapp Hill Telephone Co.

July 27: Approval given to merger of the Citizens Telephone Co., of Grand Rapids, Mich., with the Michigan State Telephone Co.

ILLINOIS.

July 10: Order issued dismissing complaint of residents of Cypress against Murphysboro Telephone Co. for failure to furnish telephone service in the vicinity of Cypress, Johnson county.

July 10: Order issued dismissing complaint of the Booster Club of Ziegler against Murphysboro Telephone Co. for failure to construct and operate a telephone system in Zeigler, complaint having been satisfied.

July 10: Order issued authorizing the Illinois Telephone Co. to place into effect the schedule of rates on file with the commission designated as Ill. C. C. No. 1 for toll service by the Illinois Telephone Co., of Jacksonville; effective July 1 as designated in the order.

July 10: Order issued authorizing and approving the sale of the telephone property of the Galesburg Union Telephone Co., located in Knox and Fulton counties —described in bill of sale entered into between joint petitioners on February 27, 1923—and the Abingdon Home Telephone Co. and the Avon Telephone Co., and the proposed sale of the telephone toll property by the Abingdon Home Telephone Co. located in Knox and Fulton counties described in the same bill of sale.

MINNESOTA.

July 31: On application of the Browns Valley Telephone Co. for authority to increase local and rural rates and to place in effect service connection and other miscellaneous charges at Browns Valley, the commission found the existing rates inadequate but that the evidence did not prove the necessity for or reasonableness of the proposed rates. A modification of the proposed rates was authorized with service connection and other charges.

July 31: White Bear Lake Telephone Co. authorized to establish the increased schedule of rates petitioned for at Starbuck with the exception of a $6 switching charge which is set at $4.20 by the commission.

September 14: Hearing to be held at Rose Creek on petition of Tri-State Telephone & Telegraph Co. for authority to change local and rural rates at Rose Creek, Mower county, and to cease furnishing service in that area from the Rose Creek switchboard and furnish it from Austin.

MISSISSIPPI.

July 27: Hearing held on application of W. A. McAnge, principal owner of the Sun Telephone Co.—which operates in northeast Mississippi and south central Tennessee—seeking final approval for the sale of the company to the Cumberland Telephone & Telegraph Co. No decision was rendered.

MISSOURI.

July 24: Consent given to the transfer of the Osceola Telephone Exchange at Osceola from James E. Passwater to C. F. Mumma and permitting the Osceola Telephone Exchange and the Lowry City Telephone Exchange to be hereafter known as the St. Clair County Telephone Co.

July 25: Authority given with certain reservations to the Columbia Telephone Co., Columbia, to change the character and form of the present authorized capital stock and to increase the capital stock by the issuance of preferred stock.

August 7: Application made by Southwestern Bell Telephone Co. for permission to issue $50,000,000 5 per cent mortgage bonds.

NEBRASKA.

July 27: In the matter of the application of the Skeedee Telephone Co. for permission to increase rates, hearing held at St. Edwards. No person protesting, company was ordered to file certain exhibits as part of the case and the matter taken under advisement.

July 30: In the matter of the complaint of C. A. Randall, now commissioner, alleging that the service at the Newman Grove exchange of the Monroe Telephone Co. is unsatisfactory, it appearing that the company has satisfied the complaint and remedied the conditions complained of, ordered that it be dismissed of record.

July 30: In the matter of the application of the Wolbach Telephone Co. for permission to establish gross and net rates, it appearing that the company does not wish to press the request, ordered that it be dismissed without prejudice to the filing of a new application.

July 31: In the matter of the application of the Daykin Telephone Co. for permission to increase rates and issue additional stock; hearing held at Daykin, and matter taken under advisement after submission of evidence.

NEW YORK.

August 2: Ouleout Valley Telephone Co., serving Franklin and vicinity in Delaware county, directed to show cause before commission at Albany on August 8 as to "why it should not forthwith make arrangements whereby long distance service may be available for its subscribers."

NORTH DAKOTA.

July 28: Application filed by Heaton Telephone Exchange Co. for permission to close the Heaton exchange.

August 2: Application filed by the Greenfield Telephone Co. asking for revision of the switching rates established by section 14 filed in June, 1922, by the Sheyenne Telephone Exchange Co.

August 2: Petition filed by Jacob Hafner and 33 others asking that the Slope Telephone Co. be required to re-establish service with the Beulah exchange of the Independent Telephone Co.

August 2: The North Dakota Independent Telephone Co. was given permission to sell 18 miles of iron wire to the Winfield Rural Telephone Co., of Spiritwood.

August 2: The Northwestern Bell Telephone Co. was given permission to close the toll station at Mapleton.

OHIO.

July 27: Ohio Bell Telephone Co. granted new rate schedule for unified service in Massillon.

PENNSYLVANIA.

July 23: Hearing on complaint of Perry County Telephone & Telegraph Co. against Cumberland Valley Telephone Co. and Shermansdale Rural Telephone Co.

WISCONSIN.

July 26: Ordered that a satisfactory telephone connection be established between the M. St. P. & S. S. Marie Railway depot at Potter and the Rantoul Telephone Co.'s exchange in that village.

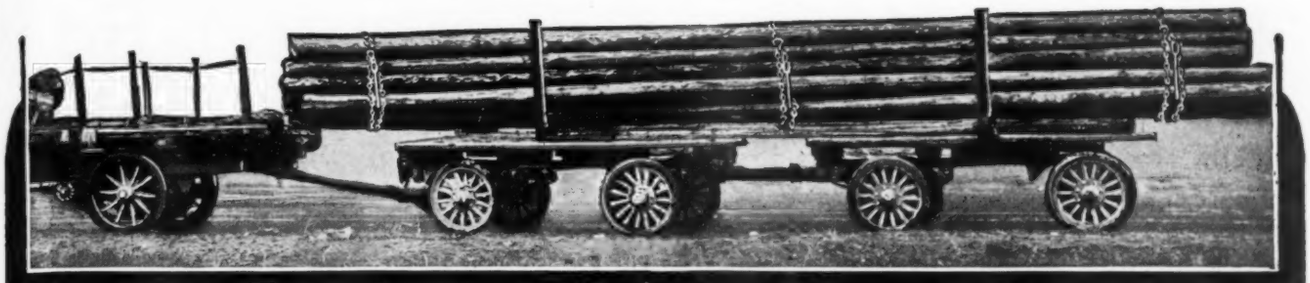
July 28: Increase in business and residence rates allowed Wise Telephone Co., of Birchwood.

July 28: Schedule of advanced rates approved for the Ripon United Telephone Co., of Ripon, effective as of August 1. Company ordered to transfer to its depreciation reserve, each year for the next five years, $1,000 in addition to the regular charge to operation for depreciation reserve.

July 30: Big Suamico Telephone Co. authorized to extend its lines along the trunk highway leading from Suamico to the village of Flintville as far as the grist mill and store of Mr. Harbrook in Flintville.

July 30: Authority given Luxemburg Telephone Co. to extend its lines in the town of Red River to furnish service to Eli Johnson, objection of Casco Brussels Telephone Co. having been withdrawn.

July 31: Permission granted Eagle River Telephone Co. to issue stock in exchange for certain telephone property in Eagle River, and to issue and sell bonds, the proceeds of which are to be used to pay for improvements.



Bind Your Telephone Poles With Stacy Load Binders

MR. EUGENE C. STACY,
Tiffin, Ohio.

Dear Sir:—I will state the question of using the Load Binder, as described in your circular, was taken up at our Accident Prevention Committee Meeting and everybody agreed that they were O. K., and instructions have been issued to order as many as necessary.

The Chairman of the General Accident Prevention Committee has been trying them out, and my last report was that they were entirely satisfactory and that they would be made standard and would replace all boom poles.

If you have not received any orders direct, you will probably receive same from the Western Electric Company, as all of our material is ordered through them.

Yours very truly,
(Name on request)
Dist. Superintendent of Plant.

Telephone companies find Stacy Load Binders big time and labor savers—also a big factor in preventing serious and expensive accidents caused by loads slipping. You simply pass chain around load—hook the ends of the Stacy Binder in links of chain—one pull of the handle and load is bound securely and safely—one man can bind any load in a jiffy.

Safer—Easier—Quicker

Stacy Load Binders are built strong and durable—last indefinitely—never break. Made in two sizes. Regular size and Jumbo size. Regular size sells for $2.50 each, $5.00 per pair. Jumbo size $3.75 each, $7.00 per pair. Sold by leading hardware dealers and hardware jobbers—if yours can't supply you order direct from

Eugene C. Stacy,
Manufacturer
Tiffin, Ohio

North

The NORTH line offers every variation of automatic telephone service, including the Automanual System for local and toll service. Automanual remote control of small exchanges, and Dial Automatic for exchanges too small for Automanual.

The North Electric Manufacturing Company
Galion, Ohio
Manufacturers of Telephone Equipment Since 1884

Bonitas for Durability

You have no upkeep or repair costs with Bonita Aerial Cable Rings. The first cost is the only one. Another reason why there are over 50 million in use.

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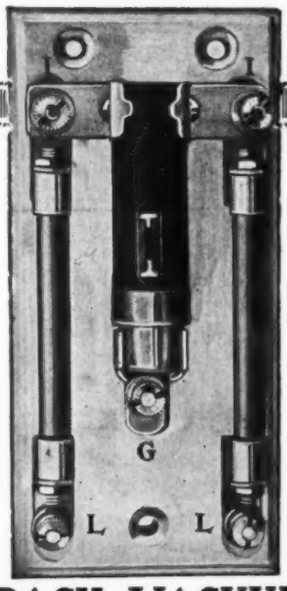

Better than ever

Prices Lower than ever

BRACH VACUUM ARRESTERS

During the past year we have brought out several improved types for telephone protection and also brought prices within the reach of every company.

Take our new Type 440, for instance. It embodies all the advantages of BRACH Arresters—full protection against lightning, crosses, grounded lines, gives clear transmission and balance of potential between pairs.

Price complete with porcelain base, fuses and mountings—$1.75 each.

L. S. BRACH MFG. CO., Newark, N. J.

The Principles of Public Relations

(Continued from page 14.)

We ought to be always at work counteracting the influence of the social quacks and the demagogues. This is really our first and fundamental duty—to help sustain the truth, to help sustain sound sociological and economic opinion.

The truth is that the institution of private property is necessary, is right, is wise, good, necessary and beneficial; not, I mean, from the standpoint of the rich, but from the standpoint of the poor.

You would think that after the experience of Russia further work along this line would be unnecessary, but the sappers and miners are and always will be at work trying to undermine and overthrow the institution of private property.

As I have said, a very large part of the accumulated wealth of this country—perhaps a sixth or seventh of the total—consists of railroads, telegraph and telephone lines, street railroads, interurban railroads and various sorts of public utilities which are held to be subject to public regulation.

These properties are held by corporations, the real owners being the owners of stock and bonds. Large amounts of stocks and bonds are held by the great life and fire insurance companies, by savings banks and trust companies. The nominal owners are not always very numerous, but the real owners are numerous.

These properties have become year by year more and more important as society and human affairs have become more complex. Often the real owners reside in one part of the country and the property is located in another. This has been and is a somewhat dangerous condition because it gives opportunity to the social quack, the muck-raker and the demagogue.

The institution of private property is not so much menaced now by the frank and open socialist as it is in danger from the insidious attacks of the demagogues of various classes. The secret thought of the demagogue runs something like this:

"Many voters are poor, or think themselves poor; many voters envy and hate the rich. Those who are poor, or think they are poor, are many and cast many votes; the rich are few and cast few votes. Those who are poor or comparatively poor, or who think themselves poor, love to blame, not themselves and not nature, but other men for their poverty.

"Corporations as a rule represent wealth. They certainly represent thrift and savings. Therefore, let us denounce the corporations, let us make charges against them; let us sophisticate; let us insinuate; let us emit derogatory adverbs, adjectives and phrases; let us talk about 'special privilege'; let us talk about 'industrial democracy'; let us talk much about 'the rights of man versus the rights of property.'"

This sort of thing will always go on. They never explain what they mean by "special privilege" and I don't know. They never explain what they mean by "industrial democracy." It just sounds good. Industry is good and democracy is good, and industrial democracy ought to be doubly good. But you and I know that there are very many things which cannot be accomplished by democracy. If an army cannot move forward until a referendum of the soldiers has been had, the war will be lost.

CULTIVATING ENTHUSIASM

How may enthusiasm best be cultivated?

By association with people who are themselves enthusiastic with regard to whatever work they are doing. By paying increased attention to one's own work, on the principle that attention breeds interest and out of interest enthusiasm grows. Above all, by visualizing to oneself the service-rendering possibilities of that work.—H. Addington Bruce.

We can not conduct war in a democratic way; and the production of wealth is a war, namely, the primary, original, warfare waged by nature against mankind.

Wind and flood and heat and drought and cold, and wild beasts, noxious insects, germs and contagion, and ignorance and vice and corruption and all the weakness and lusts of the human heart (not to mention the Malthusian law) will continue to war upon the human race long after the nations have learned not to war upon each other; and in man's battle with the merciless forces of nature and the dangerous urges of his own baser self, military discipline in industrial matters will be necessary for ages to come.

There is no conflict between the rights of man and the rights of property because the right of property is a right of man.

As man is constituted, the most precious thing to him is life, the life of his family and his own life *today;* and the next most precious thing—really a part of the same thing—is the *means* of life for himself and family, *tomorrow and the next day*—that is, *property.*

Property *is* life, especially under our present intricate and complex industrial system.

Constant war must be made on socialism; upon confiscation, whether open or masked; upon the well intending dreamers who want to improve the world at the expense of the other fellow and upon the demagogues with their words and phrases and slogans which mean nothing but confusion.

Constant warfare must be made *for* the institution of private property, not for the benefit of the rich but for the benefit of the human race. The hatred of the rich or the more prosperous is world-wide and history-wide. In the time of Moses there was need for the commandments, "Thou shalt not steal," and "Thou shalt not covet."

It has always seemed to me that if a few simple facts could be really driven home to the minds of all adult persons untold good would result. For instance, before the war it was said that if all property in the United States were equally divided, each person would have property of the value of $1,400 and no more; and if laws could be invented to keep the property equally divided, $1,400 would be the maximum and that maximum would steadily decrease. If everybody understood this all tendency to confiscation would be checked.

Take another set of facts: I discovered, by studying income tax reports before the war, that if the income of Mr. Rockefeller, Mr. Carnegie, Mrs. Harriman and Mrs. Sage, and all other persons having an income in excess of three or four thousand dollars a year, had been equally divided it would have amounted to about $14 per capita per annum. That is, the income of each person would have been increased by the sum of $14. But undoubtedly if it had been known that such a division was to be made, work and effort all along the line would have relaxed and there would have been very much less to divide.

In any event, $14 was the exact measure of all the envy and all the covetousness and all the jealousy which any poor person was entitled to entertain against all the rich persons put together—assuming rich persons to be persons with incomes of more than three or four thousand dollars, and poor persons to be persons with incomes of less than three or four thousand dollars a year.

And what this meant was precisely this: That the pangs of real poverty and pangs of supposed poverty are not chargeable in any material measure to the rich but are chargeable almost exclusively to the hostility and severity of nature and the weakness of human heads and the wickedness of human hearts.

It is not true that there is plenty for all; it never was true; it never will be true. Society in the United States today is well organized and productive, but the total production actually divided would not lessen in any perceptible degree the dissatisfaction and unhappiness that exist in the

world. It might eliminate for a short time some suffering, but the ultimate result would be as in Russia—chaos and starvation.

Truth is not always pleasant but it *is* salutary. Nothing is more important for the welfare of the poor, for the welfare of all, than that the right of private property be held sacred. They have wiped out the rich in Russia, and for the most part in Germany and all Europe, but the poor are poorer and more numerous than ever.

It is your duty and it is to your interest and to the interest of your children that the people be taught the simpler economic truths; that you can't get something for nothing; that everything must be paid for in the end; that truthfulness, honesty, fairness and intelligence are the producers of wealth and of general welfare; and that falsehood, dishonesty, unfairness, ignorance and the disregard of facts, are the producers of ruin.

After all, the great task is to *spot the demagogue* and teach the people how to spot him.

Your great enemy and mine—the poor man's and rich man's great enemy, everybody's great enemy in this country—is not capital, not labor, not the corporation, not the monopoly, not the captains of industry, not organized labor, not the labor leader as such; not any of these but the *demagogue*—the conscienceless, time-serving, popularity-hunting, vote-hunting, demagogue—able orators and able editors, liars and hypocrites, boldly assuming this falsehood; eloquently proclaiming that falsehood; advocating any and every false doctrine, or, still worse, half-true doctrine, regardless of its tendency and result, for which they can find willing ears and in return for which they can gather in votes or subscriptions.

This country has too many orators and newspapers and professors who, in this or that holy garb and disguise, persistently and with diabolical skill, nourish and foster class hatred, and cultivate in the hearts of the people jealousy, covetousness, and every form of malevolence—for gain. This is our great danger—the gradual surrender to the demagogue; the increasing power of the lie!

Public Utility Courses in Universities Urged.

"The inauguration of courses in public utility work is justified by the importance of the public utility industry to the community," declared Dean R. E. Heilman, of the Northwestern University School of Commerce, at a meeting held to outline courses on public utility education to be given this fall at the University of Illinois.

"The schools of the country today teach banking, insurance, railroad work and many other special business subjects, but have neglected an industry which supplies light, heat and transportation and which is just as important to the welfare and prosperity of a community," said he.

"I am of the opinion that educational work of this character should be started in all of the great universities of the country, and most certainly in all the state universities. I believe that this program should start in the state universities because the state today is the political unit of government which controls and regulates the utilities. Municipal regulation is a thing of the past in practically every state in the country."

"Ad" in Telephone Directory Basis for Court Action.

Marie Glover, 25, and pretty, of Minneapolis, Minn., is suing for $100,000 because a poor picture of herself was published in an advertisement.

The National School of Cosmetology, Madam De Guile, proprietor; Elizabeth Lawrence, its dean; R. J. Gile, D. W. Nichols, the Northwestern Bell Telephone Co., and F. A. Woodard, photographer, are named defendants in the suit.

The picture was used in an advertisement of the beauty school, published in the Minneapolis telephone directory. She says it was used without her authority, and that in its reproduction it was distorted and she was made to appear ridiculous. This, she says, has caused her untold mental anguish.

"Cope"

Cable Racks
Conduit Rods
Winches
Cable Reel Jacks
Guard Rails
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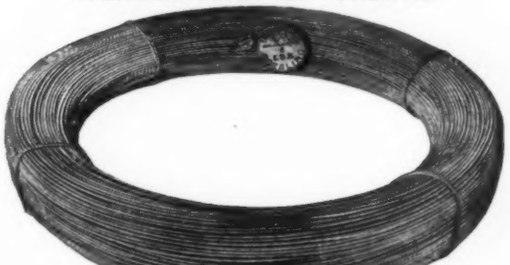

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Fortunate is the telephone man who possesses a

Peerless Automatic Water Still

Then pure water for batteries, chemical and drinking purposes is available—and at the remarkable cost of less than 2c a gallon! Gas and electrically operated models. Each extremely easy to clean—at prices within reach of every telephone man.

Get all the details—today.

SPARTA MFG. CO.
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Note Protection at Corners

Blake Insulated Staples

Unequalled for telephone and bell wiring. The fibre insulation prevents troublesome short circuits and grounds.

4 Sizes Pat. Nov., 1900

Write for Samples

Blake Signal & Mfg. Co.
BOSTON, MASS.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

Condensed Telephone News

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items Relating to Construction, Rebuilding, or Changes in Their Plants and Systems

New Telephone Companies and Incorporations.

WHITESVILLE, KY.—The Berry-Pellville Telephone Co. has been organized by B. A. Mosely, L. Helm, H. D. Brown and others. The capital is $150.

MAGALLOWAY, ME.—The Magalloway Valley Telephone Co. has been incorporated with $1,000 capital stock. The directors are L. Leavitt and A. W. Linnell.

MEXICO CITY, MEXICO.—The Compania Telephonica Nacional, S. A., has been organized by H. Millan, Jr., A. R. Mejia and others of Sonora and Sinaloa, to extend long distance service throughout Mexico.

HESTER, OKLA.—L. P. Thomas, B. W. Worthington and W. J. Radney have organized the Hester Telephone Co. with $1,000 capital stock.

CHAMBERSBURG, PA.—With $6,000 capital, the Garfield Extension Telephone Co. has been organized by H. C. Cockley, R. D. No. 3.

BRIDGEWATER, S. D.—J. J. Bollinger, C. R. Bollinger of this place and J. R. Bollinger of Marion have incorporated the Southern Dakota Telephone Co. with $500,000 capital.

BRECKENRIDGE, TEX.—The Mid-Texas Telephone & Telegraph Co. has been incorporated by G. O. Bateman, R. L. Moore and J. L. Goggans. The capital stock is $4,000.

NAVASOTA, TEXAS—The Courtney Telephone Co. has been incorporated with a capital stock of $600. The incorporators are: D. E. Lowe, E. W. Harris and J. M. Bush.

Financial.

DECATUR, IND.—The Citizens Telephone Co. plans to issue $50,000 of preferred stock.

Construction.

VICTORIA, ILL.—As a part of its summer construction work, the Victoria Mutual Telephone Co. is installing about 6,000 feet of underground cable.

CRETE, NEB.—A number of improvements have been made to the system of the Crete Telephone Co., including a new switchboard, which was placed in operation on July 1. The exchange has full selective farm line service, and has a large amount of cable in its plant—75,000 feet. The company has 1,200 subscribers, and the town is a heavy toll center. B. G. Miller holds the controlling interest in the company.

ADA, OHIO—The contract for the rebuilding of the Ada telephone exchange and for outside wiring which will eliminate all overhead wires, has been awarded. The contract involves an expenditure of $60,000 and calls for laying underground cables in Ada, Harrod, Lafayette, Alger, McGuffey and Dunkirk.

WABENO, WIS.—The Carter & Wabeno Telephone Co. has reconstructed its line from Rat River west to Crandon.

Elections.

BOYNE CITY, MICH.—At the annual meeting of the Deer Lake Telephone Co. the following officers were elected: President, H. C. Barber; vice-president; H. J. Sutton, and secretary-treasurer, S. Lumley.

LACONIA, N. H.—At the annual meeting of the Central New Hampshire Telephone Co. recently, F. W. Story was elected president; H. C. Sanborn, vice-president; F. P. Tilton, clerk; H. C. Sanborn, treasurer, and Dr. C. W. Adams, J. A. Ashman, E. C. Bean, V. E. Haserick, W. F. Knight, W. P. Odell, C. L. Simpson, C. W. Vaughan, A. C. Wyatt and F. Hill and the officers, directors.

ROGERSVILLE, PA.—At the annual meeting of the Rogersville & Rush Run Telephone Co. the following officers were elected for the coming year: President, C. F. Wood; vice-president, T. C. Crouse; secretary, G. E. P. Graham; treasurer, P. M. Rush, and trustees, E. Martin, J. Huffman and F. Breese.

FERN, WIS.—The newly elected officers of the Fern Telephone Co. are: H. J. Washburn, president; P. Parent, vice-president; and O. F. Tumpach, secretary-treasurer.

Miscellaneous.

HURST, ILL.—The village board recently voted to grant the Murphysboro Telephone Co. a franchise to operate a telephone exchange in Hurst and to erect poles, string wires and install the exchange.

GETTYSBURG, S. D.—The Potter County Telephone Co. ceased to exist as an operating corporation July 1, when the Dakota Central Telephone Co. took over the Gettysburg and Lebanon exchanges, together with all the company's farm lines.

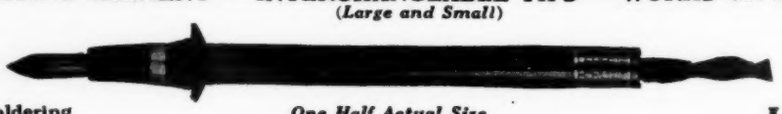
SOLDERING

The delicate connections, small units and all fine work in general is as simple as writing with a lead pencil, if you use

THE POST SOLDERING IRON

PLATINUM HEATING ELEMENT—INTERCHANGEABLE TIPS—WORKS ON ANY CURRENT

(Large and Small)



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Switchboard Plugs, All Types, U. S. Patent 1302471

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Hot Galvanized Pole Line Hardware

M. LANZ BOLT CO. PITTSBURGH, PA.

To insure delivery on time order your poles as early as possible.